

The United States MILLER

Volume 6.—No. 3.

MILWAUKEE, JANUARY, 1879.

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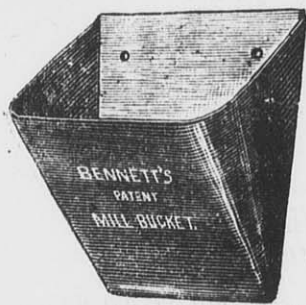
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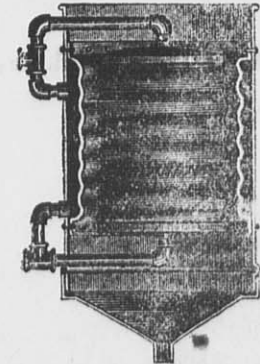
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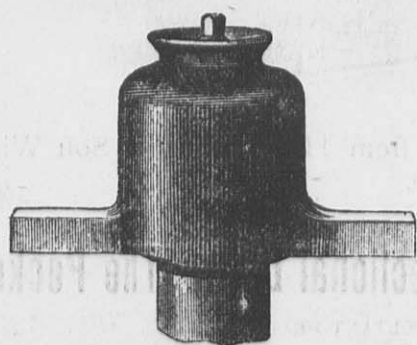


The ONLY Heater made of HEAVY COPPER THROUGHOUT; and standing 175 lbs. Hydraulic Pressure. The ONLY Heater that EVENLY heats EACH and EVERY grain of wheat; and draws the moisture from the berry to the outside or bran; thereby THOROUGHLY TOUGHENING THE BRAN ON THE HARDEST or DRIEST Spring or Winter Wheat.

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The Only Practically Perfect Driver in the Market.

This Driver combines a cockhead of improved construction with a universal joint and equalizing drive. All the working parts are up above the accumulation of dirt about the spindle and are completely encased in the bail. They will always remain oiled. Will not clog with dust or corrode or wear. Always free to work and allowing the runner to adjust itself to the bed stone, however bad the spindle may be tramed. Guaranteed to fulfill all the conditions necessary in the driving irons to produce a perfect running stone. The principles of construction and perfection of workmanship are unequalled by any other Driver in the market.

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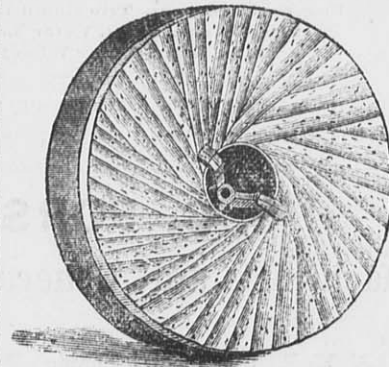


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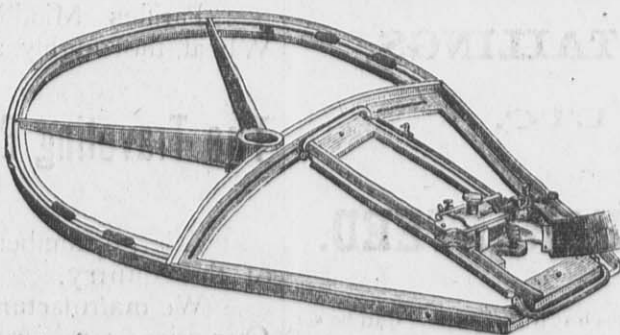
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MAY BE THE CHANGE OF LOAD,
IT WILL ABSOLUTELY GOVERN THE ENGINE,
Insuring any Uniform Speed desired, which can be changed as required without stopping the Engine.
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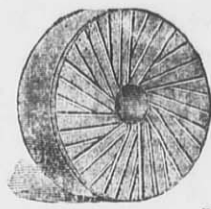
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PRICES.



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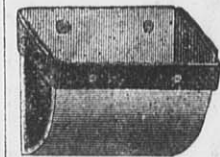
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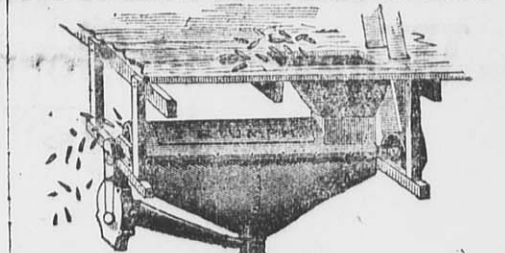


2 1/2 x 2 1/2	6c
3 x 3	7c
3 x 3 1/2	9c
3 x 4	10c
3 1/2 x 4 1/2	12c
4 x 5	15c
4 x 6	17c
4 1/2 x 7	20c
5 x 8	23c
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These Buckets have a hardware (Japan) finish; are rust-proof, are light, durable and cheap; are of the latest and most approved pattern. Also Belting, Bolts, Scoops, Iron Conveyors, and the SAFETY ELEVATOR BOOT. Special Bucket for Ear Corn. Liberal discount.

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Mill Furnishing Goods,

Dealers in the Original Hot Anchor Brand

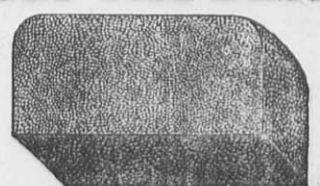
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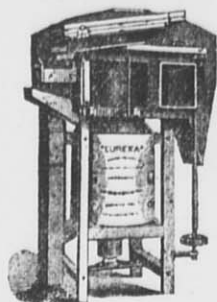
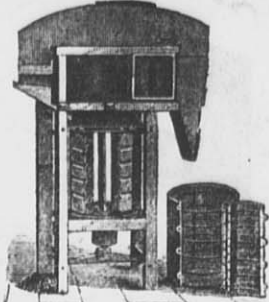
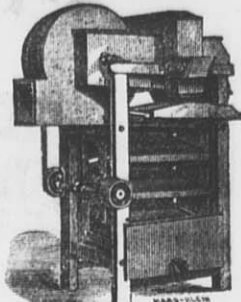


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For Cleansing, Sharpening, and Facing Burr
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Warranted to produce a better grinding the Pick or Diamond and save 50 per dressing Burrs and expense for tools 10 x 6 x 3 in., weight 12 lbs., price \$3.00 ber, 10 x 6 x 1 1/2 or 1 3/4, 1 1/2 or 2 in., as req or both for \$5.00. Sent by express on Circulars free. Address all orders to turers, MILLER & N
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THE "EUREKA"
Smut and Separating Machine.THE "EUREKA"
Brush Finishing Machine.THE BOOTH
SEPARATOR.

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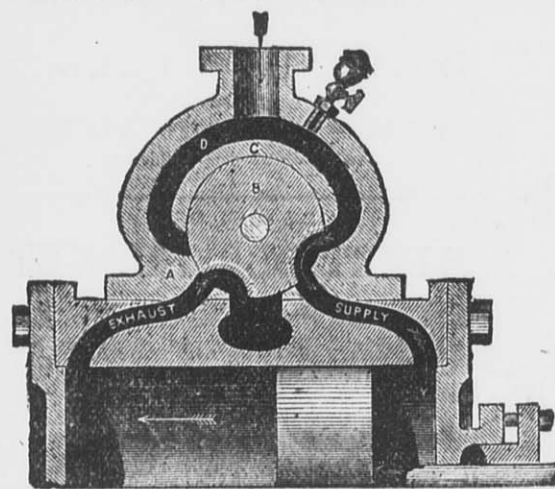
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Silver Creek, Chautauqua Co., N. Y.

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Sole Agents for Great Britain and the Continent of Europe.

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MORE POWER WITH LESS FUEL.WITH OUR
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CIRCULAR BALANCED VALVE

WE WILL GUARANTEE A

Saving of from 25 to 50 per
cent. in fuel,OR AN EQUAL GAIN IN POWER
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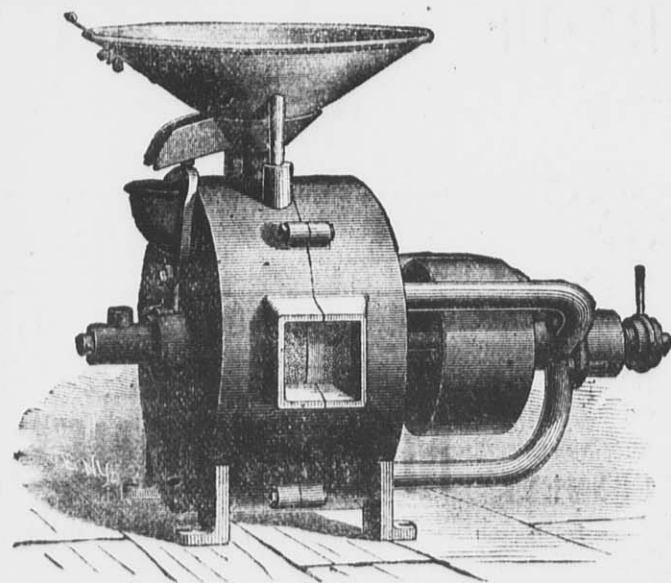
It can be attached to other Engines.

Portable and Stationary Engines and Boilers, Saw Mills, and Tile Mills.

BAYLIES, VAUGHAN & CO., RICHMOND, IND.

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**HARRISON'S NEWLY IMPROVED
Wheat and Corn Grinding Mills:**We also make a
superior mill for**Regrinding Middlings.**Send for Illustrated
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GRANULATING
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BEST MILL IN THE WORLD FOR GRINDING

MIDDLINGS, TAILINGS,**BRAN, ETC.****EVERY MILL GUARANTEED.**

Requires no extra attention when once set to work. Requires but little power. Can be set
on floor without extra foundations. No mill complete without it.

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MILWAUKEE**Middlings Mill-Stone Co.,**

Cream City Iron Works, Milwaukee, Wis.

BOTTLED BEER.**VOECHTING, SHAPE & CO.,**

SOLE BOTTLED BY

Joseph Schlitz Brewing Company's Celebrated Milwaukee Lager Beer

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MILWAUKEE**WISCONSIN.**

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We have for sale the *Largest and Most Varied Assortment* of Machinery, both NEW and SECOND-HAND, to be found in the hands of any firm in the United States, and we offer at prices far below the market value. Send stamps for our No. 17 PRINTED LIST, fully describing over 1,200 machines with price affixed to each, comprising from one to a dozen machines of each of the following articles, with many others not named.

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Box Board Matchers
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Capolas
Crushers
Cob Crackers
Circular Saws
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Circular Saw Mills
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Drill Presses
Daniels Planers
Door Machinery
Edgers
Elevators
Extractors
Emery Wheels
Engines, 1 to 300 h p
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Fans
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Grist Mills
Governors
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Grindstones
Gray & Woods' Plan'r
Hose
Heaters

Hay Presses
Horse Powers
Hub Machinery
Hoisting Engines
Hydraulic Presses
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Jacks
Jig Saws
Jack Screws
Looms
Lathes, Iron
Lath Machinery
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Nut Tappers
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Pickers
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Portable Mills
Power Hammers
Portable Engines
Printers' Machinery
Pipe, steam & water
Planers & Matchers
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Rolls
Re-Saws
Radial Drills
Rivet Machines
Ring Spinning Frames
Rubber Belt, 2 to 241
Saws
Scales
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Saw Mills
Saw Arbors
Surfacers
Swing Saws
Steam Pumps
Steam Yachts
Steam Gauges
Spoke Lathes
Steam Hammers

Shingle Mills, Skein Winders, Sash Machinery, Splicing Machines, Stationary
Engines, Tenoners, Trip Hammers, Upright Engines, Upright Boilers,
Vises, Veneer Saws, Victor Lathes, Variety Moulders, Whistles,
Wire Rope, Water Wheels, Woolen Machinery, Yachts.

No matter what machine or machines you are in want of, do not purchase until you send for and read one of our LISTS, and see the prices at which we sell. *State fully just what you want.* Address:

S. C. FORSAITH & CO.,

Machinists and General Machine Dealers,

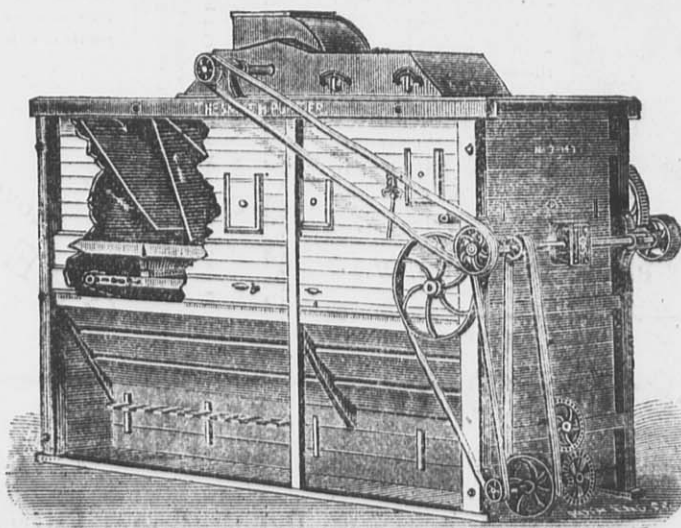
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N. B. Low special Through Freight rates obtained for our patrons to any section of the United States or Canada.

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**The Geo. T. Smith
IMPROVED MIDDLINGS PURIFIER.****SIMPLE, DURABLE, ECONOMICAL,**

AND REQUIRES BUT LITTLE POWER.



Purifies Middlings or Returns from Hard Spring or Soft Winter Wheat, thoroughly, and without waste.

HAS

The Traveling Brush, The Sectional Draft, The Pockets,

AND MANY OTHER IMPORTANT FEATURES.

A large number are in use in the successful New Process Mills of this country.

We manufacture eight sizes, adapted to the smallest or largest mills. Our prices range from \$225 to \$600, and cover a license under all of the patents owned by the Consolidated Middlings Purifier Co.

Send for our circular and price list with references.

Address the Manufacturers,

Geo. T. Smith Middlings Purifier Co.,**JACKSON, MICHIGAN.**



Volume 6.—No. 3.

MILWAUKEE, JANUARY, 1879.

Terms: \$1.00 a Year in Advance.
Single Copies, 10 Cents.

EVERYBODY READS THIS.

NEWS OF THE WORLD.

Items Gathered from Correspondents,
Telegrams and Exchanges.

CROP ITEMS—MILLING AND MANUFACTURING ITEMS
—FINANCIAL ITEMS—CASUALTIES—
ETC., ETC., ETC.

Arizona.

Three-quarters of a million pounds of wool have been shipped from Arizona this season.

The late rich discoveries of silver ore in the Tombstone district have been the cause of erection of a 10-stamp ore mill and a steam saw mill.

California.

Twelve hundred Chinamen took passage for the "Flowery Kingdom" on the last mail steamer.

Colorado.

In the vicinity of Vermont wheat is worth \$1 per bushel, and corn \$1.10. Farmers feed their horses wheat instead of corn. Colorado will probably not have any more surplus wheat to ship this winter.

Dakota.

A colony of Russians has just settled in Dakota.

Florida.

Wm. Miller, owner of the flour mill at Fernandina, is dead.

Georgia.

Over \$500,000 has been invested in cotton mills in the State during 1878. Massachusetts cotton factories are moving South.

Iowa.

The Elkport flour mills have been purchased by Wm. Feide, of Elkport, for \$5,500.

Illinois.

Water in the Fox River is so low that the mills run by water power are severely affected.

Indiana.

The Hessian fly is feared in Indiana.

Smyser & Milton, mill-owners, of Jeffersonville, have suspended.

Nordyke & Marmon Co., of Indianapolis, have just closed a contract for a 5-run new process mill in Kentucky, and another 2-run mill in Texas.

To keep up with the times, Messrs. S. Hazlehurst & Son, 17 Spear street, Baltimore, are improving their mill, and have placed the order for supplies therefor with the Nordyke & Marmon Co., of Indianapolis, Ind.

The large elevator owned by Fred. Rush & Co., of Indianapolis, which recently was destroyed by fire, entailing great loss, is being built on a grander style than before by the Nordyke & Marmon Co., of Indianapolis, who have the contract for the machinery.

Many of our readers who remember the old "Carlisle Mill" in Indianapolis will be surprised to learn that a fine 9-run new process mill is about to take its place. This mill was one of the first built in that city, and since it passed into Mr. Jay Voss' hands has been, to some extent, remodeled to make flour on the new process system. The location being such a good one and the demands of trade have grown so as to necessitate an almost entirely new mill as above. The contract for the entire work is in the hands of the Nordyke & Marmon Co., of the same city. The burrs will be placed in improved iron husks, driven by reel belts, and purifiers, middlings, rolls, etc., are used in profusion. We predict that this mill will become known as one of the leading mills in the West.

Indian Territory.

Corn is worth 30 cents per bushel at Eufaula. But little fall wheat sown.

Kansas.

Reports from almost all portions of the State speak in the most encouraging terms of the condition of the growing winter wheat.

Messrs. Skinner & Co., of De Sota, are building a first-class flouring mill in that city, which is being furnished by Nordyke & Marmon Co., of Indianapolis, Ind., including a 40-horse power engine.

Louisiana.

Fifty cases of leprosy are reported in the village of Lafourche.

Michigan.

Another flour mill will shortly be erected at Saginaw City.

The new four-run flouring mill just completed at Vassar, cost \$17,000.

The State Agricultural Association will meet at Kalamazoo, January 15th, 1879.

Muskegon reports say that more logs will be put in this winter than for many years heretofore.

A grist mill is badly needed at Marquette. For further particulars address the editor of the *Mining Journal* at Marquette.

Mr. J. O. Hudnut, formerly the chief surveyor of the Union Pacific Railroad, and who spent four years in the Rocky Mountains surveying the passes, has launched into the milling-business at Big Rapids, and to keep up with the times is having his mill remodeled to the new process by Nordyke & Marmon Co., of Indianapolis, Ind.

Minnesota.

Minnesota has 2,500 miles of railroad.

A new elevator is being built at Sherburne.

A two-run mill at Rush City is to be built soon.

A Mr. Hill, of Quincy, has purchased the steam mill at Elgin.

F. H. Pratt is building a 25,000 bushel elevator at Rush City.

Duluth has shipped during the past year 300,000 barrels of flour and 1,000,000 bushels of grain.

Jackson has just got a railroad, and the *Jackson Republic* feels jubilant over the prospects of the young city.

Western Minnesota is rapidly filling up with settlers. The immigration of the present year has been unparalleled.

Minneapolis elevators all full, mills all full. Supply of Schlitz's bottled Milwaukee lager run out or the millers would be all full too.

The coming wheat field of this country seems to be the valley of the Northern Red River in Northwestern Minnesota. Its wheat commands the highest price.

Missouri.

The great St. Louis bridge has been sold at trustees' sale for \$2,000,000.

V. Stocke, miller, of St. Louis, is succeeded by the Star Milling Company.

The East St. Louis elevator was recently sold at public sale to meet the demands of first mortgage bond-holders. It was bid in by Mr. Aug. Geye, of the firm of Meyer & Geye for the sum of \$200,000. Improvements will be made at once, and the elevator kept running.

The Hannibal & St. Joe railroad elevator, a large structure in the bottoms, not far from the Union Depot, in Kansas City, literally burst to pieces Dec. 9th, and is now a total wreck. The loss on the building will amount to \$35,000; on grain, \$10,000. No one was injured.

Maine.

Some prominent flour men of Newport, contemplate the erection of an extensive flour mill in that town sometime early next year. About \$100,000 has already been subscribed towards the enterprise.

Maryland.

J. T. Sangston, miller, at Greensboro, has taken benefit of insolvent laws.

North Carolina.

Todd & Jacobs' saw and grist mill effects are advertised for sale.

New Jersey.

The silk mills at Paterson are all running over time.

John Otto, of Bound Brook, has purchased the old Jute Mill at New Market, and, having supplied it with new machinery, has started an extensive flour manufacturing establishment.

Nevada.

The Yellow Jacket mine, the deepest on the Comstock lode, is 2,400 feet deep. Why shouldn't stocks go down?

Ohio.

A new mill is being built at Leetonia. The Mohawk flouring mill, two miles south of Tiffin, burned on the night of December 17th. Loss, \$6,000. Insured for \$4,000.

Pennsylvania.

Ramsay & McLain, millers at Tynne, have shut down.

A party of wealthy capitalists have organized a stock company for the building of an immense flour milling establishment, to be located upon the shore of Cat Fish Creek, near Washington, Washington county. A large number of shares of the stock have been taken, and sufficient money has been paid in to warrant the commencement of building operations some time in January. It is expected that this will be the largest flour manufacturing concern ever built in the Keystone State.

South Carolina.

The artesian well at Charleston is 1,940 feet deep and has cost \$20,000.

Improved business and agricultural prospects are reported from all parts of the State. The people are all hard at work. Two good years for farmers have come together. Debts are being paid and confidence is returning.

Texas.

German immigrants are arriving in large numbers.

At Fort Worth, Mr. Walcott has withdrawn from the milling firm of Ashford, Walcott & Blandin. Firm name now is Ashford & Blandin.

Utah.

A million dollar Mormon Temple is being erected at Manti.

The Horn silver mine in Beaver county is reported to be wonderfully rich.

There were 241,675 acres of land taken up during the year under the homestead and timber culture acts.

Wisconsin.

Shawano county has five flouring mills.

The Menasha paper mills are crowded with work.

James Anderson, of Dallas, is building a new mill on Pine Creek.

S. P. K. Lewis & Sons, of Beaver Dam, shipped 2,500 barrels of flour direct to Liverpool during November.

The flouring mill of Messrs. White, Nash & Co., of La Crosse, was totally destroyed by fire on the morning of December 20th. A defective chimney was said to be the cause. Loss, \$40,000. Insurance, \$17,000.

Milwaukee Items.

A delegation from Yankton, Dakota, have recently visited this city to secure the extension of the Milwaukee & St. Paul railroad to Yankton. The company have ordered a preliminary survey to be made.

Canada.

The millers of Canada propose an insurance company on the mutual plan for the insurance of flouring mills only. Many underwriters predict unfavorable results. A like movement on the part of proprietors of New England cotton mills proved a grand success.

Mexico.

The Tacuba & San Bartolo Nancalpan railroad was opened for business November 22d.

The jail at Belem is being repaired. Chicago excursionists should keep away from Belem.

A commander of the Custom House Guard, at Nuevo Laredo, was stoned by the inhabitants. Is this the customary way of treating custom officials?

The new Governor of Michoacan has changed the Prefects of all the districts of his State. He don't take any stock in civil service reform. "To the victor belongs the spoils."

"The question as to whose is the best algebra, that of Mr. Terrazas or that of Mr. Contreras, is causing a heated discussion in several of the papers of this city."—*Two Republics (Mexico)*. By jove! can they do that in Spanish, too?

A Mexican editor was recently compelled to pay for his drinks at the skating rink in the City of Mexico. If they don't suspend that rule before Chicago and St. Louis editors get down there, there will be something hot enough said to melt the ice.

You can't make us believe any more of those romantic stories about Mexican gambling houses that have semi-occasionally gone the rounds of the press. The fact is they are just like gambling houses in this country where the police are just as liable to "Keno" as anybody else, in proof of which we clip the following item from the *Two Republics (Mexico)*: "A gambling house in Cocheras street was surprised by the city police a few days ago, and fifteen gamblers arrested, the money found on the table being seized."

We have just received in exchange the *Two Republics*, a newspaper published in the English language in the City of Mexico. (*Geo. W. Clark is the editor and publisher. Subscription price, \$13 per year by mail.*) This paper is able and willing to encourage the movement now on foot to open up commerce extensively between the United States of America and the Republic of Mexico. The coming of the American visitors from Chicago, Milwaukee, St. Louis, New Orleans and other places is anxiously looked for, and the following programme is announced for their entertainment:

First Week.—First day—Visits to the President, Cabinet Ministers, and Government officers. In the evening, to the theatre, or a grand concert in the Zocalo (in front of the National Palace). Second day—Visit to the Art Gallery "San Carlos," and to Tacubaya (site of the Military Academy). Third day—Visit to the Mint and several schools. In the afternoon, Grand Paseo. In the evening to the theatre. Fourth day—Visit to Cuautitlan, Toluca, or some other neighboring town. On the fifth day an official banquet will be given to the visitors. Sixth day—Visits to the National Montepio and to other noteworthy establishments. Seventh day—Visit to the Castle of Chapultepec, where an elegant breakfast is to be provided.

Second Week.—Trips to the noteworthy and picturesque surroundings in the capital, and to the lakes.

Third Week.—Trips to various parts of the country, as to Cuernavaca, Pachuca, etc.

Foreign.

A new 14-run mill is being built in Sheffield, England.

Millers' wages in South Australia range from \$12 to \$15 per week.

Cholera of a sporadic character has made its appearance in Japan.

Chas. Hopkinson is building a new 12-run mill in Retford, England.

A diamond weighing 9.4 carats has recently been found in South Africa.

A \$25,000 flour mill in Randalstown, Ireland, burned November 29th.

Small pox is raging in Rio Janeiro, Brazil. The mortality has reached over 400 per month.

Swiss exports of silk ribbons to the United States have fallen during the last five years from \$5,000,000 to \$1,000,000.

The sequestration of the estate of Henry Taylor & Sons, grain and flour merchants of Glasgow, is announced. The liabilities are \$6,500,000. William Taylor, the imprisoned Director of the City of Glasgow Bank, is the senior partner of the firm.

The suspension of the Cornish tin mining industry in England has now become almost total. The few mines still working, with three exceptions, have largely reduced their hands. Wholesale emigration has but partially mitigated the distress, and thousands of penniless women and children are left behind.

A serious revolt of 50,000 troops has occurred in the province of Kwangsi, China. There are fears of its extension. Bad pay and rations are complained of throughout the army. There are reports of disasters to the Chinese forces occupying the conquered Western Territory. Complications with the Russian authorities are also feared.

A. Wehausen, of Two Rivers, Wis., has recently had his new flouring mill completed. It contains six run of stone and all sorts of modern cleaning and bolting machinery. It is furnished with power by an 80-horse power Corliss engine manufactured by E. P. Allis & Co. The main building is 42 by 68 feet with an addition for office, engine room, etc., 24 by 68 feet. The main building is 57 feet high from basement floor to the roof. The chimney is built of brick and is 78 feet with opening for smoke-flue 3 feet square. It is built with a stone foundation and the mill superstructure of brick, with metallic roof and is as near fire-proof as can be made. The plan of building was made by and the entire erection and construction thereof, and the placing of the machinery, was under the superintendence of Henry Smith, Esq., our well-known Milwaukee millwright. The mill is now in active operation and turns out good flour, and gives entire satisfaction to the proprietor.

A CURIOUS machine has been invented by Professor Balsamo, of Lecce, Italy, by means of which vessels are to be propelled at will in any given direction without resource being had to a screw or rudder.

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.

OFFICE, 62 GRAND OPERA HOUSE, MILWAUKEE, WIS.
 Subscription Price.....\$1 per year in advance
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 All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker.
 Bills for advertising will be sent monthly unless otherwise agreed upon.

MILWAUKEE, JANUARY, 1879.

We send out monthly a large number of sample copies of THE UNITED STATES MILLER to millers who are not subscribers. We wish them to consider the receipt of a sample copy as a cordial invitation to them to become regular subscribers. We are working our best for the milling interest of this country, and we think it no more than fair that our milling friends should help the cause along by liberal subscriptions. Send us One Dollar in money or stamps, and we will send THE MILLER to you for one year.

THE UNITED STATES MILLER has now entered upon its sixth volume, and has become universally acknowledged to be one of the most valuable milling journals in America, both for the purpose of transmitting knowledge on milling and mechanical subjects and as an advertising medium for introducing and selling all kinds of modern milling machinery. It is our aim to meet the wants of our patrons, whether manufacturers or consumers. Our editorial course will be entirely independent, and we shall do our best to give our readers the benefit of the latest important news on subjects pertaining to the objects of this paper. Our circulation and advertising patronage cover all sections of the country. We do not deal in machinery ourselves, and consequently have no "axes to grind." We cordially invite all those who have already patronized us to continue their patronage, and those who have not to try our columns. We append herewith our

ADVERTISING RATES FOR 1879.

	1 mo.	2 mos.	3 mos.	6 mos.	1 year.
One inch card.....	\$ 2 00	\$ 4 00	\$ 5 50	\$10 00	\$20 00
Two ".....	4 00	8 00	11 00	20 00	40 00
Four ".....	6 00	12 00	16 50	30 00	60 00
One-half col. (8 inches).....	10 00	20 00	30 00	60 00	100 00
One-fourth page.....	20 00	40 00	60 00	120 00	200 00
One-half page.....	40 00	80 00	120 00	200 00	400 00
One page.....	100 00	150 00	200 00	400 00	800 00

Size of page, 12x18. Length of column, 16 inches. Width of column, 2 1/2 inches; 4 columns to each page.

Business editorial matter per line, 30 cents. If over 50 lines, 25 cents.

Illustrations charged for in proportion to space occupied.

Advertising for Millers wishing situations, or millers wanting to engage employees, 50 cents.

MILL FOR SALE advertisements, \$2 each insertion.

We have recently published a List of Names and Post-Office Addresses of the Flour-Mill Owners of the United States and Canada, which is of great value to those who desire to communicate by circular with American mill-owners. The price is \$5 per copy, post paid. Cash must accompany the order.

We have also lately published a Saw and Planing Mill Directory of the United States and Canada. Price, \$5.

Subscription price to the UNITED STATES MILLER, \$1 per year.

M'Lean's Millers' Text Book, which every miller should have. Price by mail, 60 cents, post paid.

Ropp's Easy Calculator, which every business man should have in his pocket or on his desk. Price by mail, post paid, \$1.

Our Job Printing Department is one of the finest in the State, and particular attention is paid to all kinds of commercial work, which we can do on the most reasonable terms. Parties desiring to publish catalogues, circulars, etc., should send for estimates.

Address all communications to the
 UNITED STATES MILLER,
 62 Grand Opera House, Milwaukee, Wis.

A wet winter is predicted in Great Britain.

The Turkish Ministry has been dismissed. Say, Mr. Beecher.

The prosperity of Canadian banks has been steadily on the decline since 1874.

The Weights and Measures Act is now being discussed in the various British trade journals.

Reports from all the lumbering districts indicate that an unusually large amount of logs will be harvested.

At noon Dec. 17th, 1878, gold sold at par in New York for the first time since the suspension of specie payments in 1862.

The English Gen. Roberts is reported to have captured a lot of Afghans. Send us one (with yellow stripes) for our new cutter.

The Millers' Mutual Insurance Companies of Europe advertise. Similar insurance companies in this country would do well to follow their example.

The editor of the Bath (Me.) Commercial had a roast of beef and mince pies sent to him on Thanksgiving. He ought to be thankful and pious.

The Czar of Russia has read H. Herbert Emery's article on cotton, gin, etc., and has

put a duty on it. He considers it a duty to receive it.

The Corn Trade Journal and Millers' Gazette, a weekly publication published at London, Eng., is valuable to millers and grain dealers generally. Subscription price 12s. 6d. post-paid.

English bakers are compelled by law to use furnaces that consume their own smoke. A baker who had just put in a new oven that did not fill the demands of the law was arrested and fined £1 30s. and costs.

The Pacific Mills in New York, recently burned, were said to be worth \$100,000, and the grain and stock therein destroyed \$40,000 more. The cause of the fire is unknown, but is supposed to have originated from over-heated shafting.

Ross H. Wallace, the author of the "Sword of Bunker Hill," was brought up before a New York Police Court, the other day, on a charge of intoxication, but was discharged. The Sword of Bunker ought to have been run in instead of being discharged.

A severe rain-storm occurred in the New England States, New York, Pennsylvania and New Jersey, Dec. 9th and 10th, causing the destruction of much valuable property. Railroads, mills and manufacturing institutions run by water power were the heaviest losers.

The St. Louis Miller has made its appearance. It looks well and reads well. We cordially welcome it to our exchange table. We wish it a long and prosperous career. St. Louis alone ought to support a good milling paper, and will if its manufacturers and dealers serve their own interests.

It is one of the conditions of the Mutual Millers' Insurance Co., of Great Britain, that policy-holders shall keep at least three pails filled with water to each run of stone in the mill at all times, to be ready for use in case of emergency. The compliance with this rule recently saved a heavy loss.

The U. S. Circuit Court decision on trade marks, recently given in this city has excited much comment. It has been decided that the general government has no constitutional right to make or enforce laws on this subject. Each State must make its own trade-marks laws until the Constitution is amended.

The Porcelain Roller Patent case, in England, between Messrs. Wegmann, of Zurich, Switzerland, and Corcoran, Witt & Co., of London, is now on trial. Able counsel is employed on both sides. This case excites interest throughout Great Britain, about the same as the Cochrane case does in this country.

SOW HARD WHEAT.—It will be seen, by reference to the proceedings of the various Millers' Associations, that there is great objection to soft wheats. Farmers should bear this in mind and raise the wheat which the market demands. Millers generally will take pleasure in procuring suitable seed-wheat for farmers if applied to, and furnish it to them at barely cost price.

Chicago pork-packers complain that country shippers are too careless in their shipments. They say that if the shippers would have their hogs shipped in clean and comfortable cars they would get enough more for them to pay for the trouble. This is a sort of hoggyish way of looking at it, but it does seem as if humanity itself would prompt shippers to avoid cruelty to dumb brutes if interest did not.

We acknowledge with thanks the receipt of Prof. F. Kick's new German Millers' Text-Book from the publisher, Mr. Arthur Felix, of Leipzig, Germany. The book is designed for the use of students and practical millers, and is probably the most thorough work on milling extant. We regret that it is not in the English language. With the permission of the author and publisher we shall present portions of the work in the English language in the UNITED STATES MILLER.

Dec. 5th we had the pleasure of a call from Col. Gratiot, of Platteville, Wis., the inventor of the well-known Gratiot Wheat Heater. Col. Gratiot, on account of his health, has turned over the management of the business to his sons, Messrs. Gratiot Bros., Platteville, Wis. Col. Gratiot informs us that they have recent orders for Heaters from Great Britain. They

are now just shipping an invoice to Messrs. Brown Bros., Cork, Ireland. Mr. Chas. Gratiot will sail for England to effect the extensive introduction of Heaters in Europe about Christmas. We wish him a safe and prosperous journey.

A miller in one of the Northwestern States, to whom several copies of a milling paper had been sent, recently wrote to the editor: "I don't want to subscribe now or ever. Gratuitous papers are thicker than hairs on a dog."

"Do hogs pay?" asks an agricultural correspondent. We know some that don't. They subscribe for a paper, read it for a few years for nothing, and then send it back to the publisher with the P. M.'s inscription, "refused." Such hogs pay nothing to nobody, if they can help it.—Newton Journal.

Bro. Hoppin, of the N. W. Miller, has been throwing some of his cross-eyed jokes at an individual bearing the euphonious name of Jones. Jones threatens to joke back practically, i. e. he says he will sue Hoppin's paper for libel. We hope Jones will get beat if he has the temerity to sue an editor. "Sue a beggar and catch a pediculus capitis" is an old saying, but if one dares to sue an editor he is apt to catch something that will go farther and last longer. So mote it be.

The Wisconsin millers at their last meeting showed their appreciation of Sec. Seaman's labors by voting him a salary of \$250 per annum to date back from the organization of the Association. If any man has ever earned \$250 a year Sec. Seaman has. It has taken the most persistent work to keep the organization together and increase it, and this has been effected principally by the energetic Seaman. He is faithful and true to his trust and has got an appetite for "Patent Right Sharks" truly surprising.

That "awfully" reliable paper, the Chicago American Miller, in its November issue reported J. L. Wheeler, of the "Valley City Mills," Grand Rapids, Mich., dead. Wheeler himself writes to the American Miller and denies that he is dead—that he is not that kind of a man, and asks the editor to retract, and now the impudent manipulator of the scissors and paste-pot rather insists upon Wheelers taking a sort of "iron-clad oath" that he ain't dead. Keep away from Grand Rapids, boys, or Wheeler will convince you that he is "alive and kicking."

The Eureka Manufacturing Co., of Rock Falls, Ill., manufacturers of the Becker Brush, has been sued by the Throop Grain Cleaner Co., of Auburn, N. Y., for infringement of the original Becker Patent which had a contracting case. We are reliably informed that the Eureka Manufacturing Co. has not made any wheat brushes with contracting case since 1875, the time when Throop's re-issue was allowed. By reference to the announcement made by the Eureka Company in our advertising columns, our readers will see that they guarantee protection from payment of any royalties by their customers.

We are pained to announce the death of Alpheus Babcock, which occurred at his residence in Silver Creek, N. Y., Dec. 11th, 1878. Mr. Babcock was a member of the firm of Howes, Babcock & Co., well known in milling circles throughout the world as manufacturers of the Eureka wheat cleaning machines. Mr. Babcock was born in Allegany County, N. Y., but had lived in Silver Creek for the past 37 years, and has been identified with the EUREKA and the machine from which the EUREKA originated for twenty-five years. He was well known as an ingenious mechanic and inventor, a public-spirited citizen and a warm-hearted generous man. He died in the prime of life and leaves a host of friends to mourn his loss.

WHAT STOUT, MILLS & TEMPLE, OF DAYTON, OHIO, ARE DOING.—Messrs. Stout, Mills & Temple, of Dayton, Ohio, have recently furnished the following parties with machinery, burrs, bolting cloth, etc.: Archibald & Schumyer, St. Paul, Minn.; C. H. Bennett, Plymouth, Mich.; a three-run mill complete; Mills & Dawson, Cardington, Ohio; Brubaker & Bros., Camden, Ohio; D. J. Murray, Wausau, Wis.; Miller & Landsburg, Iowa City, Iowa; T. A. Phellless' Sons, Dayton, Ohio; J. E. Stratton, New London, Ind.; C. F. Webber, Fredonia, Ky.; J. W. Heater, Knightstown, Ind.; Marfield & Babcock, Niles, Mich.; McCauley, Peacher & Co., Clarksville, Tenn.; J. D. Henderson & Co., St. Marys, Ohio; John Durst, Dayton, Ohio; Bradner, Smith & Co., Chicago, Ill.; O. G. Clark, Rochester, Mich.;

James Kankinson, Carlisle, Ohio; Ashton & McGraw, Columbia, Tenn.; J. D. Wade, Wayland, Springs, Tenn.; J. A. Thompson & Co., Edinburg, Ind.; Laura Davis, Florence, Ala.; A. Dickey & Co., Middletown, Ohio; N. Young, Yorkville, Ill.; J. Fargusson, Chicago, Ill.; Thomas Baldwin, Dixon, Ill.; Jos. Sutphin, Middletown, Ohio; W. R. Yowell, Peterburgh, Tenn.; R. J. Weaver, Preble, Co., Ohio; J. W. Payne, Jamestown, N. C.; F. Richards, Elgin, Ill.; Homer Baldwin, Youngstown, Ohio; Bennett, Knickerbocker & Co., Albion, Mich.; J. B. Myers, Middlebury, Ind.; P. G. Hoag, Otsego, Mich.; S. Crowley & White, Doraville, Ga.

AMERICAN FARMING.—American farming is now equal to any in the world. Our farms generally are cleaner and freer from weeds than foreign ones—with some exceptions—and if we would use our native fertilizers, such as bones and meat refuse and fish guano; our native foods, such as linseed and cotton seed oil-cakes, instead of selling them to our foreign competitors; and also use those artificial fertilizers which are so cheap and effective, as an aid to increase our crops, we would excel the famed English farms in the product of the fields. We have this yet to do. All that is needed is intelligence and confidence, that the more liberally we feed our soils, the more bountifully they will reward us with teeming harvests.—American Agriculturist.

LIGHTING MILLS.

The question of a suitable light for flour mills is rapidly becoming one of the utmost importance. The Anchor mill was destroyed by the careless use of a lantern, and other serious accidents and losses have been occasioned by the same means. We hope Edison's electric light may prove the thing for future use in flour mills, and if it does not we hope inventors will turn their attention to the subject and invent something that will in a great measure, if not entirely, remove the liability to such accidents and losses as have occurred in the past.

THE MILLING INDUSTRY IN HUNGARY.

[Translated from Die Muehle, especially for the UNITED STATES MILLER.]

The milling industry in Hungary, which country has been so greatly favored with abundant water-power, has of late been wonderfully encouraged by the increase of the consumption of flour in Western Europe. Twenty years ago Buda Pest had five large private flour mills, with a yearly capacity of 1,500,000 barrels of flour. In 1870 the number of steam flour mills was increased to 14, using 7,410 actual horse-power, containing 552 run of stone and 64 large and 104 small roller mills. In these 14 establishments 5,000,000 barrels of flour were ground, three million of which were wheat and rye flour and the remainder oat, barley, corn, etc., giving employment to about three thousand men. The production of wheat and rye flour was as follows:

In 1871.....	3,215,000 barrels.
1872.....	2,690,000 "
1873.....	2,570,000 "
1874.....	2,700,000 "
1875.....	3,120,000 "
1876.....	3,488,023 "

Besides the fourteen large steam mills, all owned by stock companies with a total capital of 11,000,000 florins (about \$5,500,000), there are 13 large private steam flour mills in the Buda Pest district.

Notwithstanding the great capacity of these large establishments, a considerable amount of flour is brought in from the smaller mills of which the Budapest district in 1870 had 4,608, 1,907 of which were driven by water power, 545 by wind-power and 2,093 by horse-power. There were 5,926 runs of stone in these 4,608 mills with a capacity of 1,500,000 barrels of flour, of which 160,000 were fine flour, 900,000 inferior quality, 170,000 corn (meal), 120,000 middlings, 170,000 of millet, roll barley and other grains. In these small mills 5,676 persons were employed, 2,476 being managers and inspectors, 2,214 millers, 818 apprentices, 78 machinists and 60 laborers, hewing a production of only 250 barrels per man per year, giving the large steam mills in Buda Pest the advantage of producing 1,750 barrels per man per year, seven times as much as the production of the smaller mills. This certainly shows the superiority of the large establishments with their latest improvements and modern style of milling. Their capacity enables them to take the lead in the wholesale trade, and it is only for the purpose of export to the eastern parts of Europe that the private miller can compete.

WISCONSIN MILLERS.

Third Annual Meeting of the State Millers' Association.

Progress of the Cochrane and Other Suits—
Report of the Secretary—Important
Action Regarding Soft Wheat and
Freights—Miscellaneous
Business.

The State Millers' Association of Wisconsin convened December 4th, at the Newhall House parlors, Milwaukee, a good attendance being present from the interior of the State. The topic principally discussed was the necessity of putting some check upon the introduction of the different varieties of soft wheat into the Milwaukee market, which was having a tendency to lower its grade as it had done in Chicago. The rise and fall of the Cochrane suits against the Association was also touched upon, and the project of the formation of a National Insurance organization, which was rejected at the last meeting, was laid over again.

The following members from different portions of the State were in attendance: William Albrecht & Co., Newburg; Bodendorfer & Zaum, Cedarburg; A. Phelps, Delavan; B. F. Heald, Sheboygan Falls; A. Crowfoot, Hartford; John Schuette, Manitowoc; Joseph Trottmann, Cedarburg; C. W. Hodson, Janesville; W. S. Green, Milford; E. R. Hoyt, Beaver Dam; F. M. Allen, Fort Atkinson; S. R. Willy, Appleton; A. Symes, Menasha; D. L. Kimberly, Neenah; Theo. Conkey, Appleton; Ed. Sanderson, C. Manegold, Jr., & Co., Gerlach & Dittmarsch, and S. H. Seamans, of Milwaukee.

The meeting was called to order by Ed. Sanderson, the President, who briefly stated the objects of the meeting, after which the reports of the Secretary and Treasurer were in order. The monetary exhibit was as follows: Receipts for six months, \$430.17; disbursements, \$4,206.77; balance, \$95.30.

Secretary Seamans then submitted the following, containing an interesting account of the progress of the suits against this and other Associations:

Mr. President and Gentlemen: Since my report in June we have only added five run of stone to our membership. We had then unpaid assessments as follows: First assessment, 3 run; second assessment, 17 run; third assessment, 34 run. Of these last, assessments have been paid upon 20 run, leaving total unpaid, the first three assessments upon 34 run, out of a total number of 424 run. Some of those delinquent upon the third assessment have promised to pay at an early day. On the fourth, assessments have been paid upon 314 run. I have since called upon 12 run additional, leaving about 64 run still unpaid that may be counted upon in due time. Our State has paid promptly all the assessments called for by the National Association to meet the expenses of defending the Cochrane suits, and had all other Associations done as well, there would be no lack of funds; but inasmuch as the winter wheat States have proved delinquent the spring wheat States have been obliged to advance funds to meet pressing demands, until such time as the delinquents can pay up. Our State was called upon to advance \$1,000, but having only \$700 the Treasury could only respond to this amount.

So far the Cochrane party have only met reverses in all their suits. It is expected that the St. Louis cases will be tried this month, when we may expect to get a definite decision upon the merits of the Cochrane claims. Since our June meeting the claims of Cochrane, Smith and Burton and others have been consolidated under the name of the Consolidated Middlings Purifier Company, hoping in the multiplicity of claims there may be some show to yet bleed the milling fraternity of the country. They have brought one suit against parties in New York, and will undoubtedly bring others in other parts of the country. The sharks look upon the millers as good subjects to pluck, and seem determined to make the most of the opportunity, which should be sufficient warning to us that instead of relaxing our vigilance we should redouble it. For it is only too evident that there will be no rest until these claims are settled by the Courts. In order to meet and settle these demands, once for all, every member of the Association must do his part in furnishing the sinews of war. Those that can pay and don't pay, must be made to pay; we cannot expect to add much to our membership until the Smiths and Cochranes come and do a little missionary work among us.

The claimant of the Denchfield device met with your Executive Committee and stated his case. Your committee failed to be convinced by his arguments, and consequently entered into no arrangement with him looking toward a settlement of his claims. He has commenced several suits in Illinois, which are being contested, and it is confidently expected that new evidence, lately procured, is sufficient to put a quietus upon this twin of Cochranes.

I believe but few of our members realize the immense benefit they have derived from organized effort. Thus far the assessments have amounted to only \$30 per run of stone. The demands upon us during this time have been as follows: Geo. T. Smith demands to be paid "insurer" \$250 per run; Cochrane demand, "Pay up or shut up your mill," \$1,000 per run; Denchfield claim, \$100 per run. Total, \$1,350 per run as against \$30. Beside the

above we can safely conclude that other claims would have sprung up amounting to at least half as much more. While the members of the Association by organizing and paying their assessments have reaped all these benefits, it is to be regretted that there is no way to compel those who have stayed outside and paid nothing, and reaped the same benefits, to bear their just share of the burden.

The committee appointed on wheat for milling purposes not being ready to report, the Chair appointed a new one to bring in a statement after the meeting adjourned, consisting of S. H. Seamans, Dr. G. R. Hoyt and W. S. Green.

Mr. Schuette said that as Mr. Horton, the Assistant Secretary of the Millers' National, was present, he would be pleased to have him inform the convention in regard to the company's work the past year.

The President remarked that he was a policyholder in the company, and his insurance had cost him much less than it had in other companies. He then introduced Mr. Horton, who spoke as follows:

Mr. President and Gentlemen: On behalf of the Millers' National Insurance Company, I am happy to be able to report that the past year has been of success and prosperity. In compliance with the statute of Illinois, our regular annual statement will be published at the close of the year, and a full report cannot be made until then, but expecting to meet many of our Wisconsin members here to-day, and perhaps others who may wish to become such, I have made a memorandum of some facts and figures which show the growth of our business, our present condition, and what we have accomplished, which I will submit to your consideration.

The company commenced business and issued its first policy May 1st, 1876. In the short space of little more than two and a half years which have elapsed, we have secured a membership that embraces a large share of the best millers of ten Western States, and are now at work in New York and Pennsylvania with the most encouraging results. We have obtained personal surveys and reports on nearly 2,000 mills, which give us information which will enable us to secure nearly all that are desirable risks and to avoid those which are not. The expense attending this work has been very great, but it has been fully compensated for by our comparative exemption from loss. While we have lost 12 mills which we had accepted, 20 that we had rejected have been destroyed, and most of them well insured in other companies.

From the first we have considered that expense incurred in obtaining all information to enable us to secure the best risks and to avoid losses was the truest economy, and our experience has demonstrated it to be a fact. Some have feared that as we got older we would become more careless in our selection of risks, and extended our business by increasing our hazards on a poorer class of mills, but the reverse is the case. As we grow stronger, we become more independent. We are now in a position where we can and do exercise greater care than ever. We are gradually weeding out the less desirable risks, and promptly cancelling all policies where the holders will not comply with our requirements for the protection of the property insured, or who do not pay their assessments promptly. It is our aim to reduce the cost of insurance on good mills to the minimum by saving losses on poor mills which are operated without profit to the owner and in a shiftless, hap-hazard way that invites the destruction that is almost certain sooner or later to come. The moral hazard we consider the greatest in mill insurance. We agree with the miller who, when asked where an underwriter should look for the greatest danger to a mill, answered "in the account books of the owner." We believe that if a mill is paying the owner there is little probability of its burning, and if it does burn it will be from an unavoidable accident, and the loss will be an honest one. Hence we scrutinize carefully the financial and moral standing of applicants as closely as we do the physical hazard of their risks, and do not hesitate to avail ourselves of our right of cancellation of our policy whenever we find the holder is seriously involved.

The Millers' National Insurance Company has realized the most sanguine expectations of its founders. It has saved its members nearly \$100,000 directly by giving them perfect indemnity at about one-half the rates charged by all first-class companies when it commenced operations, and tens of thousands of dollars more indirectly by its influence in forcing other companies to make great concessions in their rates. This indirect benefit has been shared by the entire milling fraternity to an extent which it is impossible to estimate, but we can safely say that it could be calculated only by millions of dollars, when we consider that there are 25,000 mills in the United States.

Having been so largely instrumental in forcing a reduction in the rates of mill insurance, we can hardly deem it fair for those who have shared the benefit of our labors without assuming any of the responsibilities of the organization, to use, as some do, the current reduced rates of the cash companies as an argument against us, when they are in fact the strongest argument in our favor. Upon the continued success of our company depends a continuance of the present cash rates, or even of reasonable rates on mill risks. So long as the millers have an organization of their own, giving them the best of indemnity at cost, other companies must take mill property at but a small advance above cost, or not take it at all when it can be placed in the Millers' National. This is so evident that every miller

should see that it is his interest to support his own company if possible, rather than the cash companies, who would, if they could, drive us from the field.

We now have at risk over \$2,000,000, representing the best mill property of the United States, while our assets are nearly \$400,000, or nearly 20 per cent of our liabilities, a proportion of assets to liabilities such as few, if any, of the cash companies can show. On the 30th of November we had:

Cash in bank.....	\$ 1,626 99
United States bonds.....	10,000 00
Premiums in course of collection.....	165 00
Assessments in course of collection.....	16,978 77
Deposit notes.....	363,413 83
Total.....	\$392,184 59
The income, since January 1st, eleven months, has been:	
Cash premiums.....	\$ 12,526 11
Assessments collected.....	35,676 26
Interest.....	164 45
Deposit notes.....	95,687 50
Total.....	\$144,054 32

During the year 1878 the following losses have been sustained by this company, and promptly paid from the permanent fund thereof:

March 18, 1878, Fargo, Lord & Co., Grass Lake, Mich.....	\$4,111 75
May 2, 1878, C. C. Washburn, Minneapolis, Minn.....	2,550 00
May 9, 1878, G. C. Dellinger, Pearl Rock, Iowa.....	3,000 00
May 13, 1878, D. A. Barrows, Galena, Ill.....	4,123 90
May 13, 1878, J. H. Walsh & Co., Galena, Ill.....	510 20
June 17, 1878, Pursel, Earl & Co., Schoolcraft, Mich.....	3,659 79
July 30, 1878, A. E. Spalding, Huntley, Ill.....	3,916 00
Total.....	\$21,871 64

The amount of losses since organization, May 1st, 1876, has been \$46,134.33. All of which has been paid promptly, and aside from some items of office expenses, the company owes no man a dollar. At your last annual meeting, a gentleman stated that his insurance in the Millers' National had cost him more than it would have done in cash companies.

His error was in charging to the first year of his policy the entire membership fee, then adding the annual assessment. Though I understand that the error was corrected at the time by some one better informed as to our plan, unfortunately the statement appeared in the published report of the proceedings, while the correction did not.

The cash payment made on the issue of a policy is the membership fee for the term of five years, and in estimating the annual cost of one's policy, only one-fifth of the amount is properly chargeable to each year of the term.

For the past year, ending December 1st, the cost of no policy has exceeded one-half the rates as established by the National Board of Underwriters, and which all first-class companies strictly adhered to when our company commenced operations. First-class water power mills have cost with us 1½ per cent for the last twelve months, and for the last six months only three-tenths of 1 per cent, while the best class of steam mills have cost the past year only 2 per cent, and for the last six months only four-tenths of 1 per cent.

The largest amount which the company has exposed to loss by one fire is \$10,000, while the average is a little over \$4,000. With its present assets it could pay an average loss every ten days for more than two years without exhausting its capital.

The company is no longer an experiment. It occupies, and deservedly, too, a position that must command the confidence of the milling fraternity and the respect of its competitors. It offers the surest indemnity at actual cost, which it has demonstrated to be much below even the reduced rates now offered by the cash companies, who so recently could see no profit in mill insurance except in rates which ranged from 3 per cent on fire-proof water mills up to 8 per cent on frame steam mills.

Experience has demonstrated that its fund of deposit notes affords as ample security to the policy holder as do the miscellaneous assets forming the capital of most of our so-called reliable cash companies. These notes are the contracts of the best and most responsible millers of the country. They are good for every dollar called for to meet the obligations of the company, but valueless to any one who would attempt to steal them or to appropriate them for any unlawful purpose.

The control of the company is in the hands of mill owners, whose names are a guarantee of the faithful performance of their trust, and the watchful care for the interest of all policy holders, among whom they are themselves the largest.

We have already a large membership in Wisconsin, but there are still many others that we would be pleased to place upon our books and receive their aid and co-operation in making the company a yet greater power in the land.

Considerable discussion followed upon the soft wheat evil, Ed. Sanderson remarking that quantities were now lying in the elevators uncalled for, and there must be some reason for it. The only reason why Milwaukee wheat brought more in the markets of the world than Chicago wheat was that there was a larger admixture of hard wheat. Further miscellaneous discussion took place, several members desiring to know whether the Russian variety was not the same as "The Lost Nation"—the soft kind.

S. G. Shirland, Chairman of the Committee on Machinery, then submitted a practical and suggestive report.

It called attention to the trouble and expense which had been caused by the practice of each miller making his own experiments at his own risk. The National organization was considering the proposition to establish an institution to ascertain the value of the milling inventors. In regard to cleaning of grain

the old practice of using beaters is gradually being abandoned, as having a tendency to break the grain. There is an effort being made to remove the germ previous to grinding, but as yet it is not a success. In regard to purifiers the committee concluded that a simple sieve properly clothed, enclosed and operated with a suction air blast, is all that is required. There is a machine used for the purpose of collecting the dust from the exhaust, and depositing it into the meal elevator which is coming into use. It does away with a large dust room, and saves the labor of collection. In conclusion the Chairman regretted that those appointed on machines at the last meeting were not present, and that in trying to get information from manufacturers there had not been sufficient data as to performance to enable him to form a judgment except as to engine boilers.

The report was adopted, some discussion being raised as to the comparative advantages of small and large mill stones.

The Association here indulged in some general remarks about the necessity of filing letters patent with the Secretary of State, by which the organization could be legalized, and if need be, sue and be sued. The subject was left in the hands of last year's committee having it in charge, with instructions to bring the matter to a speedy conclusion. Mr. Seamans thought that all that would be needed would be for each member to enter into a written compact, as was the way in New York.

The President offered the following resolutions:

Whereas, The railroads now classify all kinds of mill feeds as fourth-class freight, and charge freight to Eastern markets at the rate of 5c. per 100 pounds above the rate of grain and flour; and

Whereas, The mill feeds are the cheapest of almost all commodities transported by the railroads, are loaded always by the shippers, unloaded by the consignee, and are taken in full car loads of from ten to thirteen tons, thereby affording railroads a more remunerative car service than grain and flour; and

Whereas, Such classification of 5c. per 100 pounds over grain and flour is an unjust discrimination against the Western millers who furnish the East-bound rolling freight, and is in favor of Eastern millers who obtain their grain at the cheaper rates of freight; therefore

Resolved, That we earnestly protest against the further classification of feed as fourth-class, and at any higher rate of freight than that charged on grain and flour;

Resolved, That as a matter of equity and business, we demand that the East-bound freight lines take from the millers and shippers of feed all kinds of mill feeds, at the same classification and rate of freight as that charged on grain and flour;

Resolved, That the Secretary of the Millers' Association be and is hereby directed to forward a copy of the foregoing preambles and resolutions to the general freight agents of the several East-bound freight lines.

The resolutions were adopted.

A resolution was then offered and adopted fixing the Secretary's salary at \$250 per annum.

This being the next order—the election of officers—the Chair then appointed a committee of five to report the nominees, whose action should be passed upon by the Association. They reported the following names:

President—E. Sanderson.

Vice-President—Theo. Conkey.

Secretary and Treasurer—S. H. Seamans.

Executive Committee—W. S. Green, D. L. Kimberly, J. B. A. Kern, John Schuette, C. W. Hodson.

The report was unanimously adopted.

The meeting was now thrown open to a general and promiscuous discussion, the Chairman calling attention to the immense business growing up in bag flour. Others spoke on the same subject.

There being no other regular business the members of the committee appointed to examine into the "soft wheat" matter retired for consultation and soon brought in the following:

Your committee to whom was referred the subject of wheat for milling, and particularly in reference to the soft varieties known as Lost Nation, Russian Fife, Austrian Fife and May wheat that have been introduced into the Northwest within the past few years, would say that it is our belief that one of the remedies is in a change of inspection at the great wheat markets, by making a grade of No. 2 soft wheat, and to this end would suggest that this Association request the Chamber of Commerce of Milwaukee to establish a grade of No. 2 soft wheat.

And we would further suggest that the millers in the country make an effort to furnish the farmers in their vicinity with suitable seed at cost, and to encourage the introduction of only the best variety of Fife wheat.

Your committee would particularly call the attention of the farmers and dealers in wheat to the fact that the value of the wheat crop of the Northwest is being materially reduced, by the growing of these soft varieties, and we believe it only a question of very short time when the flour business of the Northwest will be irretrievably damaged, and the future grade of wheat will be reduced in value unless a change is brought about, and the harder varieties are grown exclusively. The argument commonly used that the yield of Lost Nation, etc., is much greater than that of harder varieties, is only good as far as can be produced by any other change of seed.

There being on other business the Association adjourned.

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MILWAUKEE, JANUARY, 1879.

We call the attention of our readers in need of buckets to the advertisement of W. J. Clark & Co., of Salem, Ohio.

Angus Smith, our well-known Milwaukee elevator man, is about to erect another one with a capacity of 1,000,000 bushels.

The Court of Appeals at St. Louis, Mo., has decided that option deals are not wagers, but are legitimate commercial transactions. The point is pretty fine, but it seems to be there.

American cattle arriving in England are to be exempted hereafter from the operation of the law requiring the slaughter of imported animals immediately on landing, provided they are furnished with a Government bill of health.

Mr. Kerner, of Kelnerville, Manitowoc Co., Wis., has recently improved his mill by adding some new wheat cleaning machinery. Messrs. Smith Bros., of Milwaukee, Wis., placed the machinery.

The *St. Louis Miller* in its last issue presents an editorial description of Cromwell's new wheat heater with the illustrations of the machine bottom side up. We infer, therefore, that the new paper is starting in boldly to revolutionize the "present system of milling."

The Pennsylvania Millers' State Association will meet at Lancaster, Pa., Jan. 14th, 1879. As Pennsylvania has more flour mills than any other State in the Union, it is expected that the attendance will be large. The proceedings will be duly reported in our February number.

John T. Hope, a leading New York underwriter, says that the annual losses by fire in the United States aggregate nearly \$100,000,000. The sum is startling, and the accompanying statement that the number of fires is nearly 180 each day, shows how necessary insurance companies are to the world at large.

An interesting experiment has been made to determine whether the headwaters of the Danube found their way through subterranean passages into the Aach. Some fluorescein was placed in the water of the Danube, and in three days the splendid green color and golden reflections were quite distinct in the waters of the Aach.

The *Real Estate Review*, published at Washington, D. C., is designed to be the universal organ of real estate dealers throughout the country. It not only contains letters and advertisements from every State, but takes especial pains to publish *real estate law*. B. H. Warner is the editor. Subscription price, \$1.00 per year.

No flour mill adds its busy hum to that of the manufactories of the growing and enterprising city of Joplin, Missouri. It is claimed that no more than two or three cities in Missouri demand more flour and feed annually than Joplin, and yet there is not a mill in the town. A great deal of flour is hauled there in wag-

ons. A good mill would be one of the most certain institutions of that place. Good wheat-growing territory is now tributary to that city by rail, and the manufacture of flour would certainly pay handsomely on the investment.

THE MILWAUKEE MILLING COMPANY'S NEW MILL.—In our December number we announced our intention of giving a description of this handsome new mill, with illustrations, but on account of delay in obtaining cuts to illustrate it properly we are obliged to postpone it. The mill has commenced running and is an acknowledged success.

The Geo. T. Smith Middlings Purifier Company, of Jackson, Mich., report very heavy sales of their machines in all parts of the country. They have just got out a new and handsomely illustrated circular, and millers should send for a copy. A new cut of their machine will embellish their advertisement in our February number.

The fifth annual meeting of the Iowa Millers' State Association will be held at the Aborn House, Des Moines, Ia., January 15th, 1879. A full attendance is desired. The Mill-Owners' Fire Insurance Co. and the Patent Right Association will meet at the same time and place. The proceedings will be fully reported in our next issue.

THE COCHRANE SUITS.—The Cochrane suits against the St. Louis millers has been set for trial February 10th. This is probably the last delay. Both sides have had time enough for thorough preparations, and the contest will be a strong one. We hope to be able to announce the decision in our March number, but decisions "hang fire" a good while sometimes.

A Prussian offers to throw a dam across Niagara Falls for \$5,000.—*Ec.*

There have been a good many dam(n)s thrown around promiscuously everywhere in the vicinity of the Falls, especially when the hack-drivers were being settled with, but we believe no one ever succeeded in getting one clear across the Falls. If this Prussian can do it he will prove that he has a d—n strong pair of lungs.

Mr. Charles Galigher, of Cairo, Ill., has just patented an improved mill-curb and chop-conveyor. In this contrivance the meal cannot choke up or become clogged, but falls freely from the vicinity of the stones as soon as it comes out from between them. Access of air is thus permitted to the stones and the flour is not injured by detention between the grinding surfaces or by friction against the stone and curb.

SPECIAL NOTICE TO THE MILLING PUBLIC.—From Howes, Babcock & Co., manufacturers of the Eureka Smut and Separating Machine, Silver Creek, N. Y.:

In accordance with the demand of the times, we shall on and after January 1st, 1879, discount from our present prices of the EUREKA, the EUREKA BRUSH and the BOOTH SEPARATOR fifteen (15) per cent, with an additional discount of ten (10) per cent if cash is paid within thirty days from date of shipment of machines.

HOWES, BABCOCK & CO.,
 Silver Creek, N. Y.

A State organization for contesting the drive-wheel robbery was completed in St. Paul recently, with T. B. Wilson as President and L. P. Finke as Secretary. An Executive Committee was appointed consisting of J. W. Emory, Farmington; J. W. Wiswell, Mankato; S. Doughty, Lake City; R. Reves, Minneapolis; F. B. Clark, Benson; J. H. Walterstony, St. Paul; and V. Simpson, Winona. An address will shortly be issued. Each town which shall become a member of the association is to be entitled to representation on the Executive Committee. The association has no other purpose than to secure the highest judicial decision on the validity of the patent.

The tendency of millers to "keep dark" on milling subjects is by no means confined to this country. It is almost universal amongst the milling fraternity in Europe. Few of the leading mills will allow sketches to be made of, or allow visitors to go through, their mills, but we are glad to know that this feeling is giving way to a better one and that millers generally are getting to be more communicative, and they will find that it pays to exchange ideas and experiences with one another. The great Pesth Roller Mill, of Buda Pesth, Hungary, consented to having sketches made of the in-

terior work and arrangement of their machinery, which has been given to the milling public through the columns of this journal and copied therefrom into numerous foreign and domestic newspapers. Other mills are beginning to follow the fashion set, and we doubt not but that the various arrangements and contrivances necessary to produce the most desirable results in flour manufacture in modern mills will be shown up plainly through the columns of this and other enterprising journals. It is bound to result in good.

Ice in the rivers and lakes in the vicinity of Milwaukee is now 16 inches thick. The brewers and ice dealers are making extensive arrangements to lay in an immense stock.

GRAIN METER.

We have just received a description of an automatic grain meter. Its object is to measure and weigh grain and seeds in the running stream into or out of cars, boats, elevators, etc. It can be made of any size and capacity, and is of the highest service for bagging purposes as well as for the delivery of grain in bulk. Information can be had concerning this patent grain meter by addressing Theo. Bourne, room 10, No. 162 Broadway, New York.

THE CARR-TOUFFLIN DISINTEGRATING MILL.

The UNITED STATES MILLER, always having the interests of its readers at heart, presents in this issue the complete description of the above-mentioned mill and patents thereon, as it appeared at a recent date in *The Miller* (London). The cuts have been made by our engraver in this country after designs from the *London Miller*. This novel milling apparatus excited great interest at the Paris Exhibition among all persons interested in milling. The novelty of the process of making flour by percussion, and without the use of millstones or rolls, we consider well worthy of the attention and study of the milling fraternity this side of the Atlantic.

DENCHFIELD PATENT SUITS AGAIN HEARD FROM.

A special telegram to the *Chicago Tribune*, Dec. 24th, from Springfield, Ill., says: "The 'Denchfield' litigation, which has become familiar to the public through the reports of its progress received from other sections of the country, was transferred to this district to-day by the filing of a bill in the United States Circuit Court, in which Philo D. Mickles, of Syracuse, N. Y., appears as complainant, and Fitzsimmons & Kreider, of Jacksonville, who are alleged to be infringers of the Denchfield patent, are made defendants. The patent is described in the bill as an arrangement of means for cooling and drying meal. It is alleged that a patent for the device was issued to John Denchfield in April, 1858, and re-issued and extended for seven years in 1872, and that complainant is the owner of the patent for the State of Illinois. Also, that its validity has been declared by the United States Circuit Court for the Northern District of New York. The Millers' Association, at a recent meeting in this city, decided to resist the claim. A representative of Mr. H. B. Hurd, of Chicago, attorney for complainants, who has been in the city in reference to this matter for some days past, says that it is intended to bring suits and contest them vigorously against all infringers, among whom he includes nearly all the merchant millers. The suits in the northern part of the State are being vigorously pushed, he says, and the millers in New York are generally effecting settlements without litigation."

CARBON EXPLOSIONS.

Ever since the Minneapolis horror, people have been hunting up explosive substances until the list is now almost endless, and one begins to wonder if anything and anybody is safe. Carbon is the last one on the list. Scientists have now discovered that finely divided carbon will explode with awful force, and four cases are cited where accidents resulted from explosions of this kind in blast furnaces. In one case the blast furnace was shut down for repairs, and workmen began shoveling out. When all the loose stock was removed, leaving the scaffold hanging against the sides above the boshes, and workmen were cooling the suspended mass by means of a stream of water from below, it suddenly fell with an explosion, burning eight men, three of whom died.

In the opinion of experts, finely divided carbon became ignited and caused the explosion. This opinion is sustained by the fact that after the explosion the air was full of carbon, which

settled on everything. It is said that the explosion in many particulars was like that of the mill explosion at Minneapolis and that of the Barclay street candy factory in New York city. We hope that insurance companies will appreciate these carbon explosions as well as they have those of flour mills. Perhaps after a lapse of ages they will discover that flour mills are not the most dangerous risks in the world.

COMPRESSING THE BULK OF FLOUR.

A French chemist some few years ago conceived the idea that it would be practicable to compress flour so as to diminish the bulk and yet not injure its quality. An experiment was accordingly made. Flour subjected to a hydraulic pressure of 360 tons was reduced in volume more than 24 per cent. On close examination it was found to possess all the qualities it had previously to its violent treatment. It was then put into zinc boxes and sealed up. At the same time other flour manufactured from the same wheat, but not compressed, was sealed up. About three months after several boxes containing both kinds of flour were opened and examined. The pressed was pronounced to be the best. Twelve months after this another examination took place, and with the same result. The two kinds were kneaded into loaves and baked. The pressed flour made the best bread. In another year after the boxes were opened and examined, and while the loose flour showed moldiness, the pressed was sweet, and retained all its qualities. Made into bread the same difference was observable.

PAINLESS OPERATIONS.—The new antiseptic method of surgery which has recently been introduced into this country has been twice successfully tried at the Alexian Brothers' Hospital, Chicago, during the past two weeks. In each case a leg was amputated, and the patient rapidly recovered, experiencing no pain whatever from the use of the surgical instruments. The method of operation is as follows: The surface of the limb to be amputated is first sponged with a solution of one part carbolic acid to twenty parts water. The instruments are placed in a solution of one part carbolic acid to 40 of water. While the operation is going on, a spray atomizer throws a stream of solution of carbolic acid, one part to forty of water, into the wound. This makes the operation perfectly painless, and does away with the necessity for using chloroform or ether. The wound is then dressed with oiled silk saturated with sulphate of lead, which indicates the presence of sulphate of hydrogen by turning black, and shows whether the wound is suppurating. Six layers of medicated gauze are then placed over the wound, and the whole is covered with Mackintosh cloth.

Special Business Notices.

Do you need a good Saw Gummer or Saw Tooth Swage? If so write to J. W. Mixer & Co., Templeton Mass. Agents wanted.

NOTICE.—Owing to the death of Mr. Edward Harrison, we take this method of informing you that the business will be continued until further notice, and that all orders will receive prompt attention. Letters should be directed to the "Estate of Edward Harrison," New Haven, Ct.

IMPORTANT TO MILLERS.—The necessity of the most positive uniform speed in the motive power of flouring mills is generally conceded. The unprecedented results in way of positive regulation of engine, durability and great economy in use, now guaranteed by the Hutton Governor Company, are worthy the consideration of all who may use steam power. See advertisement.

IMPORTANT NOTICE TO MILLERS.—The Richmond Mill Works and Richmond Mill Furnishing Works are wholly removed to Indianapolis, Ind., with all the former patterns, tools, and machinery, and those of the firm who formerly built up and established the reputation of this house; therefore, to save delay or misarrangement, all letters intended for this concern should be addressed with care to Nordyke & Marmen Co., Indianapolis, Ind.

NOTICE.—The milling public are hereby notified that we have discontinued all suits against Messrs. E. P. Allis & Co., for infringements of patents on the Cockle Separator, manufactured by us, and the said firm of E. P. Allis & Co. will hereafter sell our machines on same terms as other mill furnishers, or the undersigned.

COCKLE SEPARATOR Mfg Co.
 Milwaukee, Dec. 27th, 1878.

THE MILLER'S TEXT BOOK.—By James M'Lean, of Glasgow, Scotland.—A descriptive and explanatory account of the various grains, machinery, and processes used in grain mills. The first clear and successful explanation of said processes ever printed. It treats on and explains all the newest and most improved modes of manufacturing wheat, oats, barley and peas, introducing the three latter mainly with the views of illustrating the principles at work in the proper manufacture of the first. Such as the various modes of storing, cleaning and grinding wheat, and the effects on their proper working with the Baker, showing conditions which must be observed to make flour equal to Hungarian. The effects of the different styles of working mill-stones, rollers and disintegrators contrasted. Also the different modes of separation, including gold sifting, the revolving crank sifter, the shaker, the wire cylinder, the silk reel, the best mode of working the silk reel. Vertical and horizontal air currents, the effects of air currents contrasted with sifting. Altogether explaining clearly well defined principles which govern proper grinding and dressing, where too often all is doubt and uncertainty. And although extensively circulated in Britain the last 12 months, none has yet ventured in print, to controvert its solution of the most difficult problems in the milling business. And being the production of a miller who has been over much of the United States, it can be easily understood by American millers. Price sixty cents, sent post paid. Address all orders to E. Harrison Cawker, Editor of THE UNITED STATES MILLER, No. 62 Grand Opera House, Milwaukee, Wis., who is sole agent for America.

CAWKER CITY, KANSAS.

Its Location—Its Advantages—Streams—The Surrounding Country—Immense Trade—Fine Buildings—The Division Terminus of the A. S. V. & D. Railway—Population—Kansas People and Kansas Pluck—etc., etc.

Cawker City is located in the heart of the Solomon Valley, about two miles from the Forks of the Solomon River. The North Fork of the Solomon, and also the South Fork, all along the northwest and westward are well settled for a distance of over eighty miles. The natural amount of trade from these two great feeders, has always, more or less, been directed to this city, as also other portions of the neighboring counties through which they run. Cawker City is in the northwest corner of Mitchell county, and as a consequence has the trade and business of the southwestern part of Jewell, the southeastern part of Smith, and the northeastern part of Osborn counties. This, combined with the immense trade coming down both of the Forks of the Solomon, gives us the advantages of a business center of magnitude that is seldom seen in other towns in this part of the State. As will be seen this gives us a location favorable to a rapid and permanent growth, and one which will in the future, as it has in the past, attract business and capital from abroad to this point.

Good water is in our city and surrounding country. Wells in abundance are in town, and the water is pure and cool. Mitchell county has abundance of springs, and water can be procured everywhere at an average depth by digging thirty feet. Oak Creek is situated two miles west of Cawker City, is heavily timbered, and has a good thrifty class of farmers, whose well-improved farms and immense yield the past year illustrates what can be done by experienced farming in this beautiful valley. Carr Creek is situated south of this place, and is also well timbered and thickly settled. Walnut Creek is situated southeast of Cawker City, and is also well timbered and settled. Grannet Creek is situated east of Cawker City, and some of the finest farms in the State can be found in this part of the country. The trade of the farmers on these creeks all center at this place, and it is a large one. There are numerous other creeks, but they are not of sufficient magnitude for special mention. The water question is well settled in this part of the county, and we have yet to hear of one instance where any one has been disappointed in this particular necessity. The Great Spirit Medicinal Spring, located about two miles from this place, is the source of wonderment to new comers who are suffering from various ailments in the East, who come here to be cured by its magic waters. It is one of the curiosities of this part of the State, and, combined with its beauty and strange history, including the healing properties of its water, must be seen to be appreciated.

The Atchison, Solomon Valley & Denver Railroad Company have made arrangements to extend their line of road to this city this winter, being now but twenty miles distant. The Company propose to make this city the division terminus of the road, and will erect a round-house, and also put in machine shops at this place within the next year. The Kansas Pacific road, now at Minneapolis, will also extend its line through this county to intersect the Union Pacific road in Nebraska, via Cawker City. The upper road of the Union Pacific, now at Red Cloud, directly north of us, we are informed will extend their road southward through our town to reach Wichita, in order to gain the immense cattle trade at that point, of which that road has little or no part in at the present time. Cawker City will have plenty of railroad facilities, and our people are railroad men, who have the best interests of our beautiful city ever at heart. With the Atchison & Solomon Valley road in operation at this place, also the competing south line of the Kansas Pacific, combined with the not improbable north road of the Union Pacific, would give our city four roads. It will easily be seen that the Kansas Pacific road will reach this place to compete with the immense trade that the Atchison road will get by its extension, and the necessity will then arise of one or both roads pushing out in search for more trade. If the Atchison road takes the North Fork of the Solomon, the Kansas Pacific will undoubtedly extend its road up the South Fork, and thus both Forks will have roads terminating at this place. It is not necessary for us to say how much benefit this will be to our town and country, and also to the great business these competing

lines will build up for our people. Our position as a city, and also as a business center is favorable to all these acquisitions, and extremely fortunate both in its location and its class of citizens, who spare no means to give our beautiful city all the facilities that surround her.

Cawker City is located on a high eminence, a position which commands a view of the country surrounding, and on clear days our town can be seen by parties fifteen miles distant. "A city on a hill cannot be hid," applies to us, and with the many fine buildings erected here, the hiding part is impossible. The atmosphere is clear and bracing, and testimonials can be procured of parties who come from the East suffering from lung affections being entirely cured by no other remedies than the pure air of this locality.

The population of Cawker City is now (Dec. 1st, 1878), 655, and is rapidly increasing. It is not a city of premature growth, for buildings are going up all over the city, and other improvements of permanent character are going up everywhere. The town is crowded with new comers every day, and buildings go up with extreme rapidity. Some of the finest business blocks in the State have been erected at this place, and others are being erected. The Magnesian Limestone, Wacondite and red sandstone are the finest building rock that any State can boast of, all the colors from snow-white to brown, pink, yellow and deep red, being sufficiently soft when first quarried to be easily dressed or cut with an ordinary saw, and hardening by exposure to the air.

Cawker City is surrounded on all sides by as beautiful a farming country as the sun shines upon. No poor or worthless lands are to be found in this vicinity, being entirely without surface stone, but limestone for building purposes abound in almost every bluff or swell on our prairie. The land is a black loam intermixed with sand, and the soil is from two to ten feet deep, and no richer or stronger soil can be found anywhere. No soil in other States excels it for the production of wheat, rye, corn, oats, barley, Irish and sweet potatoes, vegetables, and all concede that Kansas produces the best apples, pears, peaches, and small fruits of any State in the Union. Northwestern Kansas is destined to be the most densely populated portion of the States, from the very fact that it has a much larger proportion of good land and fewer poor acres than any other part of Kansas, and the climate is the healthiest. Today good lands are comparatively cheaper here than any other portion of the State, and the reason why this is so is because it has been isolated and so far from market for produce. Farmers heretofore have had to cart their grain from sixty to one hundred miles to the railroad, but now our portion of the State is to be more highly blessed with railroads.

One hundred and sixty acre farms are selling at all prices, from five to twenty-five hundred dollars apiece, owing to location, improvements, etc. Farms are now changing hands rapidly, and farm lands are increasing in value and must necessarily for years to come. Capitalists and farmers can find no better investment than in farms here. They are finding that out and are coming from every State in the Union.

The business of the town is comprised in the following statement: Grocery stores, 6; dry goods and clothing stores, 7; hardware stores, 2; drug stores, 2; furniture store, 1; restaurants, 2; hotels, 2; jewelry establishment, 1; blacksmith shops, 3; wagon shops, 2; tin shops, 3; barber shops, 2; boot and shoe shops, 3; millinery stores, 3; photographic gallery, 1; livery stables, 3; dairy, 1; churches, 2; town hall, 1; a large fine school house; 2 house and sign paint shops; 3 harness shops; 2 lumber yards; 2 meat markets; 1 pawnbroker's shop; 1 brewery; 1 real estate office; 1 circulating library, etc. We have a number of physicians, lawyers, mechanics, and various business enterprises not necessary here to enumerate. Town lots are in active demand, and on an average no less than ten lots have been bought each day for the past two months.

Our city presents a lively appearance every day in the week. The city is daily crowded with teams and strangers, and thanks to our broad avenues, there is none of that blocking of teams, as is seen in other towns that have small and narrow streets. Our city has averaged in the last three months a house a day, and not shanties either, but fine one and two-story stone and frame buildings.

Our people are steady, sober, energetic, enterprising and open-hearted, who have always had faith in the future of our city, and have helped without stint every enterprise that was intended for the progress and welfare of the town. Kansas people are not drones,

neither are they of the Texas class, who only care for self and leave other obligations to take care of themselves. Kansas is no place for egotism or big-head. It is a state of facts, and the dreamy and foppish characters are sadly out of place when they come in contact with the average Kansas man. Business first, pleasure last, is the working motto of this State, and we see it no more verified in literal fact than at this place. Cawker City is made up of Kansas people, everything is progressing, and no idle man stands in the road to block progression.

Christian influence is felt here, in the air—everywhere, and "neighbor help neighbor," is the maxim of the day. Our churches are well attended; our school has nearly one hundred and fifty scholars; our town is blessed with a library that goes to nearly every home; the day laborers have all the work they can attend to, and the business men are increasing their various business callings each successive month, and on every hand can be seen amid the bustle of trade, of new buildings, or on crowded thoroughfares, contentment on every countenance. If any one is discontented here, it is his own fault, for everywhere and on every hand can be seen some employment or enterprise that pays by careful attention or industry. To strangers abroad who have not been in our midst, we would advise them to give our city a call, note the improvements going on, the growth and position of the city, and our word for it, we will guarantee satisfaction every time. Cawker City will be the largest city in Northwestern Kansas at an early day, and on every hand we see the spirit and presence of progression and thrift in our midst.—*Cawker City Free Press.*

[Parties contemplating settling in Kansas will do well to visit Cawker City. Hon. John A. Seger, of Cawker City, will be pleased to attend to the wants of those desiring to purchase business or residence lots. For information apply to him personally, or address with stamp for reply.]

IMPORTANT TO BOILER MAKERS.

United States Steamboat Boiler Inspection.

[Continued from first page of December number.]

The January number of the London *Engineer* contained a report of a series of experiments made by Chief Engineer Schock, of the United States Navy, which shows different results from those given here regarding the strength with and across the grain of iron, but the fact that his results are contrary to all previous experience seems to indicate that the iron used was of uncommon quality and that it would be difficult to repeat such results. Safety seems to require that boiler-makers should work their plates so that the greatest tensile strain shall be with the grain of the iron.

Manufacturers would benefit themselves and render valuable assistance to the Board of Supervising Inspectors if they would confer with each other and unite in recommending some standard for determining the lawful qualities of boiler-iron, and submit it to the Board at its next annual meeting in January, so that a uniform method of testing through the United States may supersede that now existing, which allows a prejudiced officer to exclude certain brands of iron from certain markets, to the injury of the manufacturers thereof and without benefit to the public.

It is believed that the efforts now being made by this office, and supported actively by manufacturers generally, will introduce into the market iron of American manufacture for marine-boiler use equal if not superior to that made in any part of the world. But whatever be the qualities of new iron, the eccentric manner of its wear under steam is yet unexplained. Some plates oxidize as soon as used; others of identical texture and position wear for years without material deterioration; and others, again, after wearing for several years without apparent damage, suddenly oxidize and are destroyed in a few months. This last condition was forcibly illustrated by the steamer *Magenta*, which exploded the outer shell of her steam-chimney, March 23, near Sing Sing, on the Hudson. In May, 1877, the boiler being then about four years old, a new lining was put in the chimney; at the same time the inner part of the outer shell of the chimney was thoroughly sealed with a hammer, and the experts who examined it and the boiler-makers who repaired it, swore that it had not materially wasted at that time. A few months later the inspectors inspected the vessel, and there is every reason to believe that the boiler then was in good condition; the *Magenta* was then used for three months and then lay idle for

six months. A few days after resuming work the outside shell of the steam-chimney exploded under pressure lower than that lawfully allowed her, revealing the iron at the point of rupture decreased by oxidation from $\frac{1}{4}$ of an inch thick to a knife's edge. It is known by persons experienced in such subjects that had the iron been in this condition nine months previous, no such repairs as the vessel then underwent could have been possible, for the outer shell of the chimney would have been torn to pieces by the taking out and putting in of the socket-bolts connecting the two parts, and while all the experts who testified in the case agreed that the corrosion had been as sudden in its commencement as rapid in its progress, they could not agree on its cause; some attributing it to the felt covering used on the outside of the boiler, others to a mineral paint put on the inside of the boiler when it was repaired. Such disasters can be averted by frequent and careful inspection; there are places, however, in all boilers where personal inspection is impossible and where the hydrostatic test must be relied upon. I recommend to all steamboat owners the importance of demanding such tests frequently, especially when after a season of inactivity work is resumed, for experience proves that boilers deteriorate more rapidly while idle than while continuously used. To enforce my suggestion I need only to cite the case of one of the large North River steamers, which, after undergoing thorough repairs to every part accessible to personal inspection, applied the hydrostatic test the day before beginning her regular trips last spring. Before the lawful pressure was reached several flues burst, and nearly all had to be replaced by new ones. This steamer carries from 1,500 to 2,000 passengers on a trip, and the possibility of an accident under such circumstances should be enough to convince every one of the necessity of such precaution; had the *Magenta's* boilers been subjected to the hydrostatic test last spring there is no doubt their defects would have been discovered, remedied, and the sacrifice of human life avoided. I dwell upon these details minutely because Congress has been importuned by some persons to abolish the hydrostatic test entirely, a measure the above incidents should prevent.

The *Magenta* explosion disclosed that inspectors when inspecting vessels did not remove the felt covering from the boilers, which this accident proved to be absolutely necessary. Suggestions on this point were immediately made from this office to the supervising inspectors, and generally adopted in the salt-water districts, which will prevent, if carefully followed, disasters from such omissions. Should cases of individual neglect occur, I shall recommend that the department deal vigorously with the offender.

The greatest loss of life during the year from a single accident resulted from the wreck of the steamer *Metropolis*, on Currituck Beach, North Carolina, January 31. This steamer was originally called the *Stars and Stripes*, but when she was lengthened in 1871 her name was changed. She was last inspected in December, 1877, at New York, by assistant inspectors Craft and Blake. She was then a freight steamer, but in January, 1878, she was chartered by Collins Brothers, of Philadelphia, to carry freight and passengers to Brazil, at which time Mr. Craft, assistant hull inspector, without consulting his colleague, indorsed on her certificate permission to carry two hundred and twenty-eight passengers and signed it with his own name only, in violation of rule 61, rules and regulations, which declares that "certificates of inspection signed by one local inspector only shall not be considered valid." There is no evidence to show that the owners of the steamer were aware of this fact, nor is it for me to decide in how much they were to blame for this ignorance; but in this connection I subjoin an extract from a letter written October 20, 1863, by Mr. Chase, then Secretary of the Treasury, to the supervising inspector at San Francisco:

"It is the duty of the ship-owner to discover what officer of the government may give a legal certificate, and to know how many passengers their vessels may lawfully transport; and the responsibility of failing to procure a legal certificate or to comply with its requirements rests properly with them."

The *Metropolis* sailed from Philadelphia January 29, and next day sprung a leak, which no efforts could stop, and at 6.30 a. m. on the 31st she was beached four miles below Currituck light. Of the passengers and crew, numbering two hundred and forty-eight persons, one hundred and fifty-seven were saved by the officers of the life-saving station and the citizens of the neighborhood; the remaining ninety-one were drowned. A special investigation of this disaster was made by the local inspectors at Philadelphia.

THE CARR-TOUFFLIN DISINTEGRATING SYSTEM.

There is a proverb which affirms that threatened lives last long, and if millstones had ears as well as eyes, they might, from the number of vaticinations that have been made within the last few years with regard to their speedy and complete extinction, comfort themselves with the anticipation that a far different fate was in store for them. The advocates of rollers have threatened and are threatening them with annihilation, and, oblivious of the benefits they have conferred upon the race in all parts of the world and from time immemorial, they have declared in effect that such rude contrivances for the manufacture of so delicate a material as flour ought never to have existed. The advocates of the New, are, however, always more or less ungrateful for the services performed by the Old. The New, of course, would have a better chance for securing a perfectly clear stage, had the Old not quite so much to say for itself as it generally has. Thus it frequently happens that the innovator, although originally the mildest and best tempered of human beings, has the milk of human kindness soured within him because the institution or machine he desires to replace by something much better, can give very sturdy reasons why it should not be summarily improved off the face of the earth.

Venerable although millstones are as regards their years, associated as they are with human use in a highly important sense, and surrounded as they are with an atmosphere of poetry the sources of which can be traced both to sacred and classical inspirations, it is not for a moment to be supposed that they have any prescriptive right to continued existence apart from their adaptability for the performance of the specific work assigned them. If innovation is not invariably synonymous with improvement, as the innovator would have us believe, neither is it always that hideous and dangerous thing which people with strongly conservative instincts declare it to be. In the nature of things the old must give place to the new, and, as art and science are in their very essence progressive, it need not be surprising that it has been found that under certain conditions and circumstances some arrangement of rollers may not be more suitable for the manufacture of flour than the time-honored millstone. But if the advocates of rollers have threatened extinction to the millstone, a new king has arisen which knows not either. The name of this potentate is Percussion, and his prime minister in France is M. Toufflin, Rue de Constantinople, Paris.

The Paris Universal Exhibition has now brought percussion into cosmopolitan prominence, thanks to M. Toufflin, who in his pavilion has demonstrated the practicability of manufacturing flour of a very superior quality by percussion. But although M. Toufflin has contributed materially to the improvement of the system of which he is the exhibitor and exponent at the Paris Exhibition, the inventor of the system is an Englishman, the late Mr. Thomas Carr, of Bristol, member of the Institute of Mechanical Engineers, and the history of the system is certainly not the least interesting in what may be termed milling mechanics.

In the year 1859 Mr. Carr patented a disintegrating machine, March 20th, No. 778, for the purpose of pulverising unfibrous materials of different kinds, used chiefly in the manufacture of artificial manures, without grinding, crushing, or stamping. In consequence of super-phosphate of lime, for example, containing some combined moisture, it was liable to get into a pasty condition when crushed. It was found, however, that when a lump of this material was thrown up into the air and struck a rapid blow with a stick, it became completely shattered into minute fragments as though it had been subjected to some explosive force. The stick and the blow it imparted to the flying substance contained the germ of the idea of Mr. Carr's disintegrator. The principles embodied in the machine were a combination of centrifugal force and percussion. The pieces of the material, whatever its nature might be, were caused to fly through the machine by the powerful impetus communicated

to them by centrifugal force resulting from rapid rotation, and the flying pieces were struck in mid-air with rapidly reiterated blows delivered in alternately opposite directions by a succession of rotating beaters, being shattered by collision against the unarrested beaters which encountered them in the opposite direction to that in which they were moving. As the particles struck could offer no resistance but that which was due to their own inertia, without the aid of any solid abutment to support them on the reception of the blow, it followed that no friction or compression was produced, and that the moving power of the beaters was not unnecessarily neutralised and absorbed by any such unyielding abutment. Originally, the disintegrator was used for the granulation of super-phosphate of lime when it had conglomerated into a pasty mass after having been partially dissolved by vitriol. It was, however, subsequently applied to the

a better and whiter flour is obtained. And my improved wheat flour consists of wheat reduced to flour by percussion while it is free in the air, by any suitable beaters, though I prefer to use my patent disintegrator described in the letters patent, No. 778, A. D. 1859, and No. 3,235, A. D. 1868, suitably arranged, balanced, and driven at sufficient speed, as the best and most suitable machine for the purpose."

By the 1870 patent, No. 1,895, referred to above, the modifications and alterations necessary for adapting the original disintegrator to the grinding of wheat were provided. The annexed engraving (fig. 1) is an elevation of Carr's original disintegrating flour mill.

Fig. 2 is a section of the machine. A B show the discs and the beaters; C C show the annular ring carrying the cage; D E are two shafts running in the same line; G is the feed pipe, and H is the worm for discharging the

in a radiating shower from every portion of the circumference into the outer casing in the form of meal, similar to that thrown out by ordinary millstones. To this mealy condition the grain was reduced almost instantaneously by its being dashed to the right and left alternately by the bars of each of the successive cages revolving in opposite directions at a very high rate of speed. At its fall to the bottom the meal was continuously removed by the worm shown in the engraving, and was subsequently passed through silk dressing machines to separate the fine flour from the semolina, the latter being purified by an exhaust current of air in a machine adapted to the purpose, to free it from all bran specks previous to its being ground by millstones.

The course of a particle of grain through the disintegrating flour mill is illustrated by fig. 3. The circular arrows show the reverse direction in which the alternate cages rotate,

and the straight arrows at different angles show the zig-zag course of a particle of material as it flies off at a tangent from each cage, being struck alternately to the right and left and projected at a speed equivalent to that at which the bars of the cage last striking it were rotating. The force of each blow was thus measured by the momentum of the material which in each case is moving in an opposite direction to that of the beaters it next meets with. The machine was driven at the rate of 400 revolutions per minute, and the outermost ring having been 6 feet 10 inches diameter, the last beaters had a velocity of 140 feet per second or about 100 miles per hour. This was double the velocity, and consequently gave four times the force of the blow of the innermost ring of beaters, the force of the blow being proportionate to the square of the velocity. In the patent of 1870, provision was made for applying to the machine a chamber or dome and an exhaust fan or an outlet leading to an exhaust fan, "so that," says the specification, "as the fine flour is falling the exhaust fan will have just sufficient strength to draw away the lighter part of the grain or what is termed cerealine, blue powder, or other deleterious matter which is discharged into a suitable chamber."

The inventor's claims in this patent, so far as they related to the manufacture of flour, are, "1st, the processes or means of reducing wheat and other seeds into coarse or fine flour by the application, to the purpose of my patent, disintegrators; 2nd, the construction of the machine for reducing wheat and other seeds to flour with two or more of the first inner cages all rotating in the same direction, and with distributing cylinders and counterbalancing fly-wheels; 3d, the combination of an exhausting draught within the casing or chamber in which the reducing machine works, to draw away the cerealine or other deleterious matter."

"The object of the fan," says the inventor, "is two-fold. First, it is to direct the current of air produced by the mill so as to prevent its rushing along the trough which contains the screw, and to cause it instead to take an upward course. Secondly, it is to remove from the flour, while the meal is being dispersed through the casing, the lighter dust called cerealine which is unsuited for a first-class flour. This cerealine deposits itself in one of Pengesitt's exhaust chambers, after traversing the passages of which the current of air, now free from all flour or dust, is allowed to escape into the open air. The first disintegrating mill had a disc diameter of seven feet, the beaters being bars; subsequently a machine five feet diameter was adopted, with a corresponding decrease in the width of the cage, in which pegs only a quarter of the length of the bars in the original machine, were substituted for the bars.

In a patent, dated 4th September, 1871, No. 2,334, but not proceeded with, Mr. Carr provided for exhausting the air from the machine, to reduce the friction and minimise the driving power. The improvement patented by Mr. Carr in 1871 consisted in arranging the whole machine, or the cage part of the machine only, to work in a box chamber or casing from which the air is exhausted, the shafts passing through stuffing boxes in the sides of the

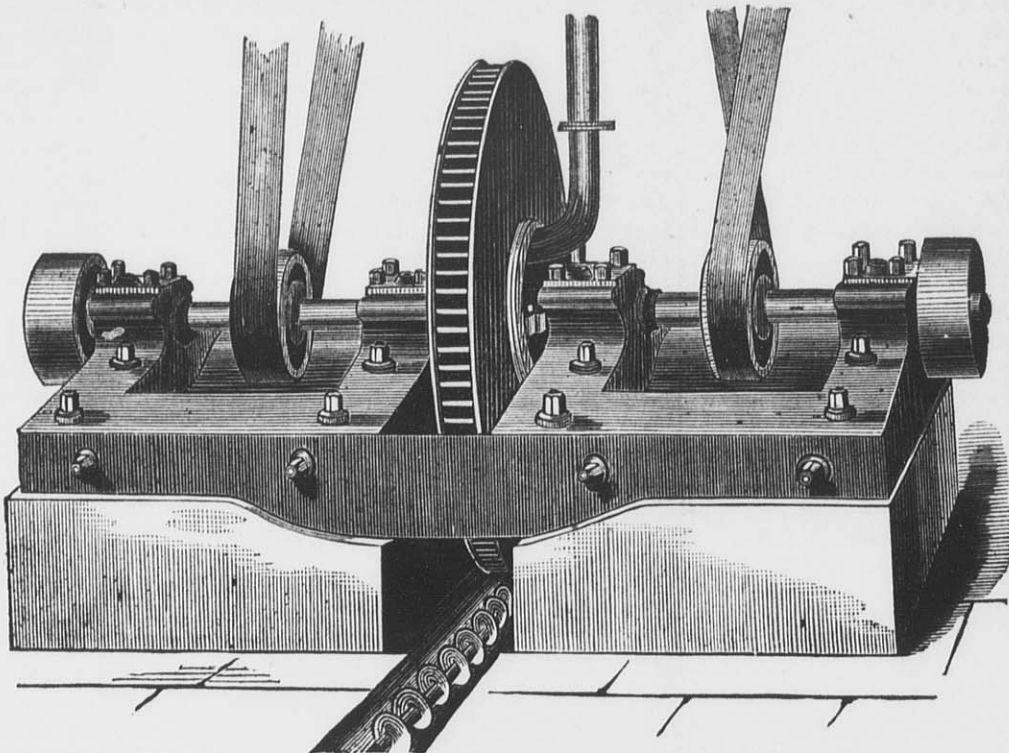


FIG. 1.—CARR'S ORIGINAL DISINTEGRATING FLOUR MILL—ELEVATION.

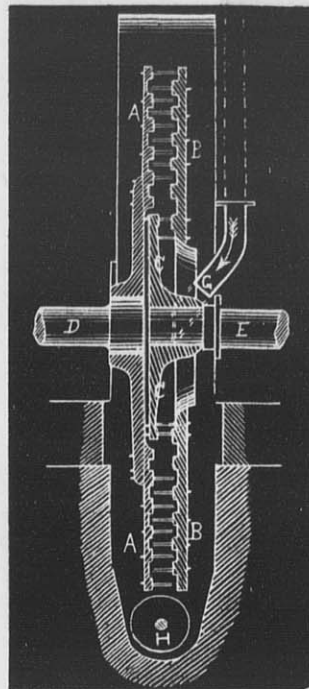


FIG. 2.—CARR'S DISINTEGRATING FLOUR MILL. SHOWING PEG BEATER.

granulation of clays, the ores of various minerals, and other substances. It is important to notice that in his provisional specification Mr. Carr says: "It is not, however, necessary that every two continuous cages should move relatively in contrary directions, but that they may move in the same direction at different speeds, or one cage may be stationary while another is in motion."

In 1868, 27th October, No. 3,235, Mr. Carr took out further patents for improvements on the original machine, but up to this time no thought had been given to the adaptability of the disintegrator to the manufacture of flour. The idea, however, of converting a mill originally designed for the granulation of unfibrous materials, such as minerals and ores, into a means for the granulation of wheat subsequently suggested itself, and in 1870, 5th July, No. 1,895, the first disintegrating flour mill was patented along with a modification of the system for wheat-cleaning.

In the same year, viz., 1870, 2d Aug., No. 2,149, Mr. Carr took out a patent for flour manufactured by percussion. In his provisional specification he says: "I have discovered that wheat may be reduced to flour by percussion while it is freely falling or projected through the air, and that the flour so produced has peculiar and superior qualities different from that of the flour of wheat produced by the ordinary process of grinding between two rubbing surfaces, or that produced by crushing or pulverizing between two surfaces. By my improved mode of manufacture the bran is separated more effectually and in larger scales, and not being pulverized or reduced the flour is purer and the particles of the flour are of a more perfect granular character, and, being suspended in the air in the process of reduction, there is no tendency to heat injuriously, and the 'cerealine' or other deleterious matter is more easily and fully extracted, and thus

meal from the machine. The machine, as described by the inventor in a paper read at a meeting of the Institution of Mechanical Engineers, in 1872, consisted of a pair of circular discs rotating in contrary directions upon two shafts situated in the same line. The opposite faces of the discs were studded with a series of short projecting bars or beaters arranged in successive concentric rings or cages, and the rings of beaters fixed in one disc intervene alternately between those fixed in the other, and revolve in the opposite direction. The solid circular disc keyed upon the left-hand shaft carried the third cage or ring of beaters counting outwards from the centre, and also the fifth, seventh, and eleventh cages, all of which rotated in the same way. On the

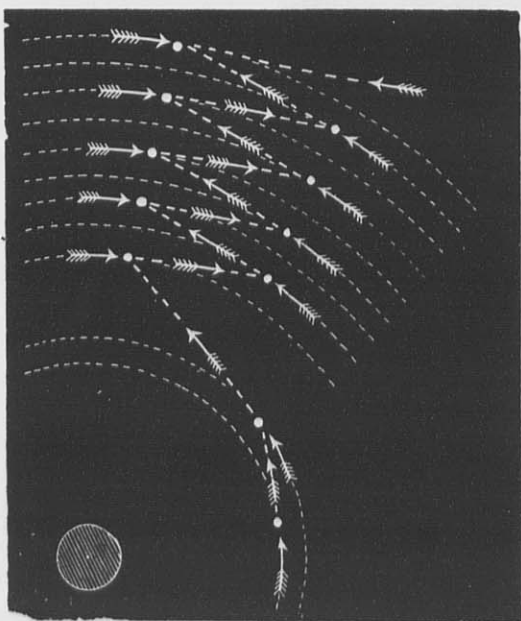


FIG. 3.—CARR'S ORIGINAL DISINTEGRATING FLOUR MILL—COURSE OF WHEAT IN PROCESS OF DISINTEGRATION.

right-hand shaft was keyed an inner disc, into which were riveted the bars of the two innermost cages of beaters, their other ends being riveted into the right-hand annular disc, which is thus carried by them. This annular disc carries the fourth, sixth, eighth and tenth cages, which, with the two innermost, all rotate in the contrary direction to the cages carried by the left-hand disc. The two innermost cages are fixed in the same disc, so as to rotate in the same direction, in order the

more effectually to secure the distribution of the grain by centrifugal force. The cages of the beaters are of successively increasing diameters, and consist of half-inch round steel bars, with clear spaces between, of about two inches in each direction. The outer ends of the bars in each cage in the original machine were fastened together by a ring, an arrangement which, however, does not exist in the more recent machines.

The grain was delivered through a fixed shoot, shown in the engraving, through the centre opening of the outer casing into the innermost cage, from which it was instantly projected through the machine and delivered

chamber when the cages only are enclosed, the said box chamber or casing having a capacity sufficient to contain the machine or cages of the machine, and a supply of grain to be operated upon, and also the flour produced from such supply of grain, and with arrangements for feeding the grain placed in the chamber by screws or elevators to the machine if required, and for introducing fresh supplies of grain to and removing the flour produced from the chamber. The chamber may be supplied with grain by pipes or shoots, which may be divided into two or more compartments; and while one compartment is discharging its grain into the casing of the machine the other is being filled, the valves between the two compartments being arranged and operated so that one valve is always shut when the other is open.

The flour may also be removed from the casing or chamber by a similar arrangement of two or more compartments and valves. After filling each compartment for supplying the grain, the air may be exhausted from it, and after emptying each compartment for discharging the flour the air may be withdrawn from such compartment. The air is exhausted from the casing

by pumps or other suitable means, and it is drawn by preference from the upper part of the casing up a vertical pipe of sufficient height, and may be arranged to pass through fine silk to keep back any flour, the silk being stretched on a disc frame, and made to rotate in front of the exit opening so as to constantly present a fresh surface, that part of the silk when not opposite the opening being acted upon by a brush to remove any flour which may adhere to the face of the silk, or the air might be made to traverse serpentine troughs or chambers to give time for the air to deposit the flour carried along with it before being finally discharged into the atmosphere.

Another patent was taken out by Mr. Carr in 1873, 19th April, No. 1,417, the main object of the invention patented being to arrange and construct the disintegrator so that its set of cages, which rotated in one direction, might, by simple means, be easily separated from those that rotated in the reverse direction whenever the bars or cages required to be conveniently got at for cleaning and repairing. This the inventor accomplished by ingenious arrangements which are fully set forth in the specification of the patent, and a series of elaborate drawings (see fig. 2). In 1873 an extension of six years was granted for the original patent.

In 1872 Mr. Carr wrote, "though the machine itself has been happily brought to that nude state of elementary simplicity which indicates that little or no margin is left for further genuine improvement in it, yet the knowledge of how, under all varying circumstances, to turn its powers to the best practical advantage in the treatment of its products, is obviously susceptible of developments and improvements to an extent of which we are as yet but little conversant."

The disintegrator was the creation of Mr. Carr's genius, and its improvement, from its invention in 1859, was a task to which he devoted the best energies of his life. Its application to the purposes of a flour mill was a development of his original idea, which long seemed an impossibility to himself. How could a material like wheat, which is entirely destitute of anything to serve

as an abutment, which was invariably provided in any kind of flour mill, to be pulverized by percussion while flying through the air? It was not deemed possible that wheat, with its low specific gravity, the minuteness of its particles, and the tough and fibrous nature of its outer covering—the bran—could, by its mere *vis inertia* present sufficient resist-

Mr. Philip Triggs, Bristol, and Mr. Benson, solicitor, of the same city, were appointed Mr. Carr's trustees by the will of that gentleman, Mr. Triggs being invested with the management of the patent. Prior to Mr. Carr's demise, he assigned his patents in France and Belgium to M. Toufflin, 25 Rue de Constantinople, Paris. Subsequently Mr. Carr's trustees

of the patent, 9th February, 1878, No. 546. No further description of the general principles and mechanism of the machine is required than we have given above. All that is now necessary is to explain the annexed engravings of the machine, which we shall do in the patentee's language. Fig. 1 is partly a longitudinal section and partly the elevation. Two

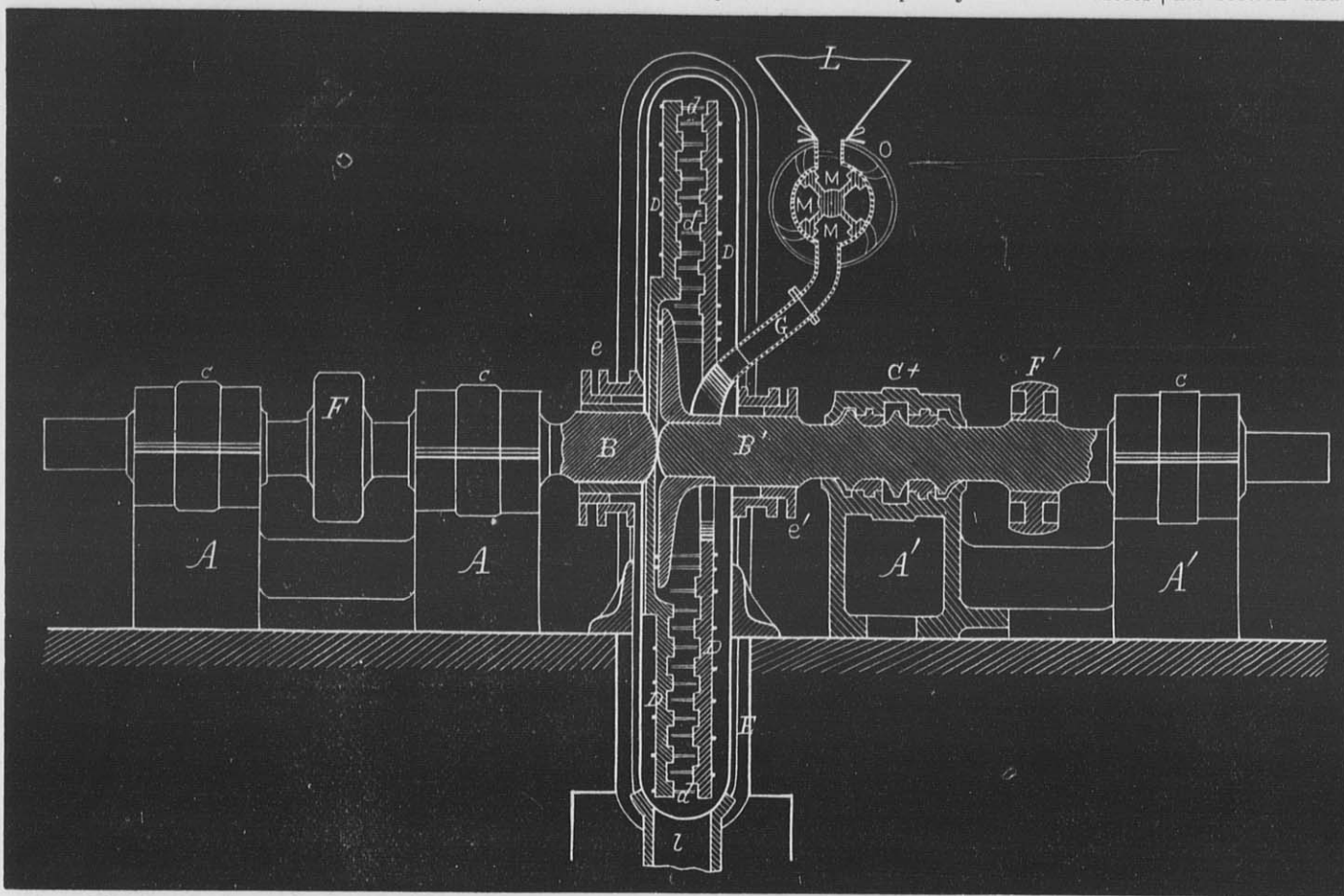


FIG. 1.—CARR-TOUFFLIN DISINTEGRATING FLOUR MILL.—PART SECTION AND PART ELEVATION.

ance to beaters to enable them to reduce it into flour while it was unsupported and flying freely through space. This seeming impossibility, however, was made possible and a machine which had been invented for the treatment of such gross materials as ores, minerals, clays, and manures, was so to speak, sublimated by the mechanical genius of its inventor into a machine for the manufacture of the exquisitely delicate material of which our daily bread is composed. Had Mr. Carr lived longer it is quite possible that several questions connected with his machine which still wait for solution would have been solved, but the inventor died in 1874, and the further improvement of his invention, if improvement there was to be made, was left for other hands.

entered into further arrangements affecting the countries just named with M. Toufflin.

The disintegrator flour mill of both sizes, viz., 7 feet and 5 feet diameter respectively, were adopted by some millers in the United Kingdom. It took a large amount of courage to adopt a novelty of such an extreme and even startling stamp as that which Mr. Carr had provided, and great credit was due to those gentlemen who had the intelligence to perceive that, in the means of a revolution in the mode of flour manufacture that had been effected by Mr. Carr, there was at least something that was worthy of a practical investigation.

We come now to a description of the Carr-Toufflin disintegrating flour mill, exhibited at the Paris Exhibition, and which is the subject

treated by means of a tube, G, bifurcated at the end within the case, so as to deliver the substance at the centre of the cage, and provided with an apparatus for excluding air at the other end where it is connected to the hopper. This apparatus consists of a cylinder, H, divided into several approximately air-tight compartments by radial partitions, M, attached to a shaft passed through the centre of the cylinder, and caused to rotate by a pulley, O, driven by a belt connected to the main driving shaft.

As each compartment is presented in turn to the aperture at the bottom of the hopper, L, it is filled with the grain or other substance to be pulverized or reduced, and as it continues to rotate it carries the same round to the aperture on the top of the feed pipe, G, into which its contents are discharged, while all air except that which is contained in the interstices of the grains or granules is effectually excluded. A similar arrangement is provided for the discharge of the flour or pulverized substance through a pipe, i, at the lower part of the case for excluding air at this point, this apparatus being likewise actuated by a belt and pulley, O1, fig. 2, driven by the main driving shaft.

A more or less perfect vacuum is maintained within the case by means of a pump, J, fig. 2, on what is known as Greindl's system, connected to the case by a pipe, j, and actuated by the main driving shaft; or an ejector, K, fig. 2, provided with a check valve may be employed for effecting the same object by means of a jet of steam obtained either direct from the boiler or from the exhaust pipe of the engine.

The air within the case being continually exhausted and rarefied by the action of the Greindl pump or ejector, the injurious resistance hereinbefore referred to is considerably reduced, if not completely obviated.

It is evident that air may be exhausted from the chamber in which the cages rotate by means of apparatus other than those hereinbefore specified, such for example as ordinary air pumps; the air may also be exhausted through hollow shafts, or the outlet or outlets for the air may be situated at any part of the case

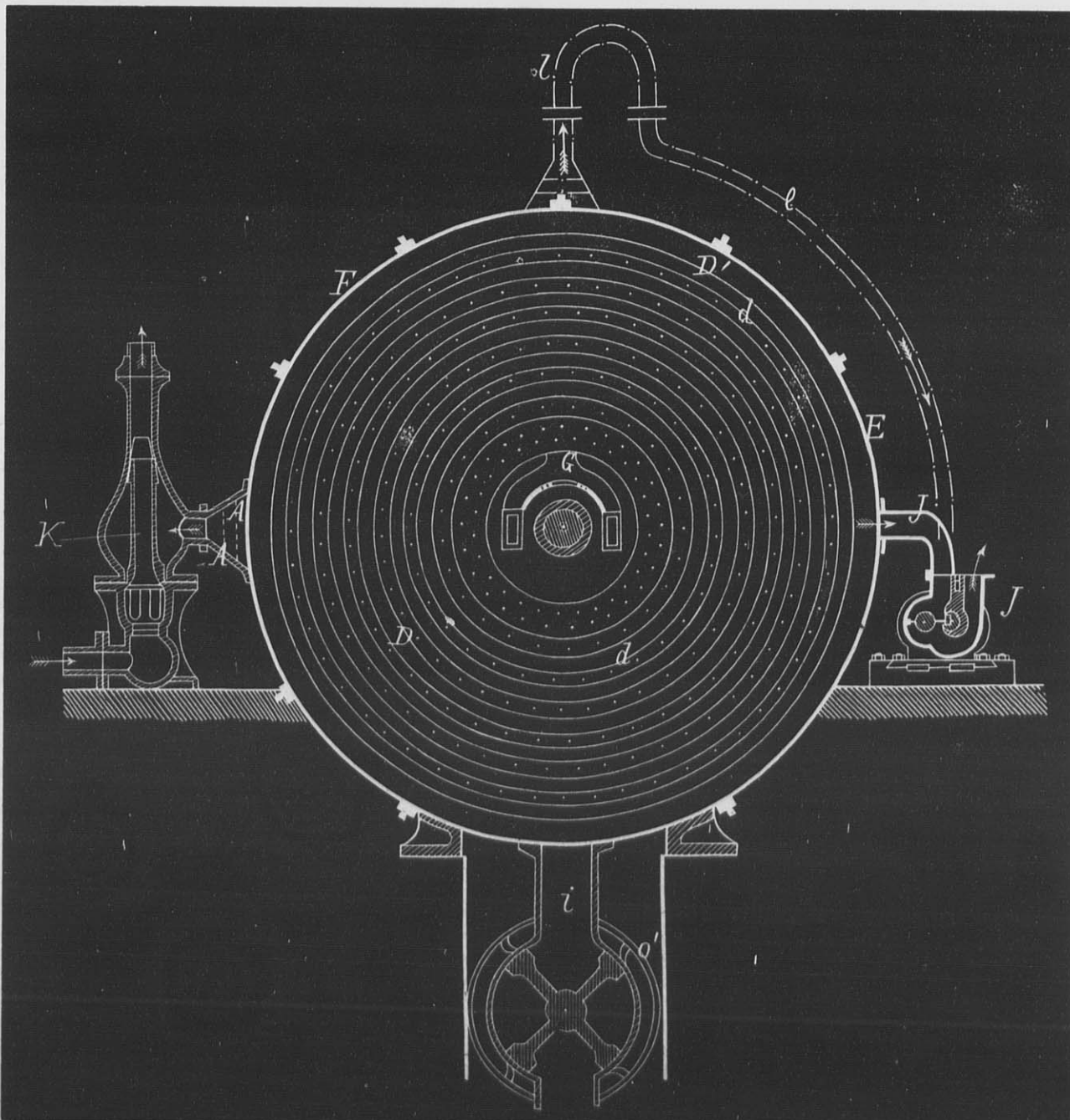


FIG. 2.—CARR-TOUFFLIN DISINTEGRATING FLOUR MILL.—SECTION SHOWING BEATERS OF DISC, ETC.

which may be found most convenient according to circumstances, and the said outlets may be provided with wire gauze diaphragms, as shown at A, A, fig. 2, in a conical chamber which will not impede the passage of the air, whilst the wire gauze prevents the escape of the flour, and for the same purpose the pipe through which the air is exhausted may be made of a syphon form, as shown in dotted lines at I, I, fig. 2, or the apparatus described for the discharge of the flour may be replaced by a powerful fan, exhausting the air within the case, and delivering the flour to a bolting apparatus, which will thus be enabled to work easily and economically under pressure.

This improved pulverizing or disintegrating apparatus working in a rarefied atmosphere possesses other important advantages besides the great saving in motive power. The rarefaction or exhaustion of the air in the chamber in which the cages work has the effect of considerably reducing the temperature in the said chamber, and maintaining it at a very low degree, which in the production of flour or meal in general, and corn or wheat and flour in particular, is a most important object. This rarefaction or exhaustion of the air also has the effect of facilitating the free fall or projection of the grains or granules, also of promoting the evaporation of the water contained in the grain, so as to greatly facilitate its decortication.

Moreover, this last-named effect of the rarefaction or exhaustion of the air enables dry meal or flour to be obtained direct from the mill, and consequently in the best possible condition for its transport or preservation.

The said invention is applicable to distintegrators generally constructed upon the principle of that hereinbefore described and illustrated in the accompanying drawings, whether with vertical or horizontal axes, either solid or hollow, and with any required modifications in the details of construction.

Having now described and particularly ascertained the nature of the said invention, and the manner in which the same is or may be used or carried into effect, I would observe in conclusion that what I consider to be novel and original, and therefore claim as the invention secured to me by the hereinbefore in part recited letters patent is, reducing grain and other substances in a vacuum or partial vacuum, substantially in the manner and by the means hereinbefore described.

Such is the description of the form of the machine shown at the Paris Exhibition, and which has attracted a very large share of attention from milling visitors and experts. The discs of the Toufflin machine are one metre (about 40 inches) diameter, the diameter of the beaters being about half an inch, and three-fourths of an inch long, arranged in circles about one inch apart, from one beater to another is about one centi-metre (four-tenths of an inch). The orifice of the feed pipe is about four inches diameter, and the speed is 1,152 revolutions per minute. The chief practical questions that remain to be solved are the driving power of the machine and its quantitative results. With regard to the first, there are various statements, but so far as can be judged from the conflicting estimates, the power is greater than that required for mill-stones. On the other hand, the advocates of the system say that, supposing the power to be slightly in excess of that required for mill-stones, the disintegrator still has economic advantages because the cost of mill-stone dressing is dispensed with, and the flour produced is superior in quality. From personal observation we are prepared to admit that a certain quantity of the flour produced is of a very excellent grade, but we were unable to ascertain, on independent grounds, the exact percentage of flour to wheat produced. The following statement which we have received is the nearest approach to exactitude we have obtained:

CHARONNE February 13, 1877.—Result of bolting 1,044 kilos. (1 kilo.=2 lbs. 3 oz.) of meal from French wheat (high grinding):

	Kilos.
First quality of flour, dressed through French silks, Nos. from 150 to 180.....	434
Semolina, soft.....	140
Semolina, hard, dressed through French silk, Nos. from 55 to 100.....	318
Re-ground middlings, dressed through No. 50 French silk.....	34
Small bran, through No. 45.....	46
Middlings bran, through No. 40.....	18
Large bran, from tail of silk.....	79
Tare of 25 sacks, etc., say.....	1,009
	25
	1,044

Rate of production, 2,000 kilos. per day.
Diameter of machine, 70 centimetres (28 inches). Width about 4 centimetres (1.6 inch).

	Parts per 100
Fine flour.....	43
Semolina.....	45
Bran.....	12

CHARONNE, February 14, 1877.—Result of bolting 868 kilos. (1,750 lbs.) of meal from French wheat (low grinding):

	Kilos.
Fine flour, dressed through French silks, Nos. 150 to 180.....	479
Semolina, soft.....	68

Semolina, hard, dressed through French silk, Nos. 55 to 100.....	205
Re-ground middlings, dressed through No. 50 French silk.....	23
Small bran, through No. 45 French silk.....	34
Middlings bran, through No. 40 French silk.....	14
Large bran, from tail of silks.....	57
	883
Tare of 15 sacks, etc., say.....	15
	868

Rate of production, 1,000 kilos. per hour.
Diameter of machine, 70 centimetres (28 inches). Width about 4 centimetres (1.6 inch).

SUMMARY.

Fine flour.....	54% parts per 100
Semolina.....	33% "
Bran.....	12 " "

RISE EXPERIMENT.—Notes of an experiment on 1,000 kilos. of broken rice at Charonne, October 1, 1878:

Diameter of machine, 1 metre (40 inches).
Length of beaters, 0.16 millimetres (0.64 of an inch).
Speed, 1,150 revolutions per minute.
Estimated actual horse-power required to drive the disintegrating mill and requisite dressing machinery, 22-horse power.

The silks were coarser than was desirable for the experiment, the numbers for flour ranging from 120 to 160, inclusive, and for semolina from 80 to 110. The rice was dealt with by the machine at the rate of about 550 kilos. per hour, but it must be noted that the width of the machine between the discs was only 16 millimetres (0.64 of an inch). 200 kilos. of rice meal were reserved as a sample of the work done by the machine. The remaining 800 kilos. were passed through the dressing machinery, and the semolina returned to the disintegrator.

The result as to quantity of rice flour obtained was as follows:

First passage (broken rice).....	365 kilos.
Second passage (semolina).....	290 "
Third passage (semolina).....	99 "
	754 of fine flour.

To this must be added—	
Weight of samples.....	19.50 kilos.
Semolina not reduced.....	26 "
Waste from tail of dressing silks.....	6 "
Left in silks, machinery, etc., say.....	24.50 "
	800 kilos.

the same not having been cleaned out.

With regard to the quality of the flour, Professor Kick says he compared Toufflin's No. 1 flour, according to Pekar's method, with No. 3 flour according to the Prague numbers, and the result was such as would induce no Austrian miller to adopt Toufflin's process. It may, he thinks, be an improvement on the primitive method of French milling, but it will certainly not be adopted in Austria. Toufflin uses very soft French wheat; with the same kind of treatment, the hard Hungarian wheat would yield still darker flour.

Toufflin's assertion that 200 lbs. of flour would furnish 300 lbs. of bread, was not borne out by the experience of Professor Kick.

There can be but one opinion as to the ingenious way in which the original inventor of the disintegrator applied his invention to the purposes of a flour mill. Whether, however, the disintegrator, even with all the improvements that have been made upon it, is destined to supersede the mill-stone and other means for the conversion of wheat into flour, is a question which is in the hands of the future.—*London Miller (Eng.)*

FROM PENNSYLVANIA.

PHILADELPHIA, Pa., December 17, 1878.—Since the slight lull in the flour manufacturing trade, the latter part of last month, there has been a grand revival in the business throughout the city and State. The millers in those great flour producing sections of Pennsylvania,—Chester, Delaware, Montgomery, Lancaster, Bucks, Berks, Lebanon, Lehigh, Northampton, Dauphin, Franklin, Montour, York, Snyder, Northumberland, Lycoming, Clinton, Columbia, Luzerne and Huntington counties,—are of the universal opinion that this year's business has been the best, in every way, that they have been blessed with for many a year, and, of course, the times having been so good with them, numerous enlargements and improvements are contemplated by many of influential and wealthy flour men in nearly all the districts enumerated above.

The "dusty millers," believing that much of their prosperity, this season, is due, in a great measure, to the interest taken in the Pennsylvania Millers' State Association, which was organized last January, are projecting arrangements to more further extend the sphere and usefulness of the organization. The next gathering of the association will take place at Lancaster next month. While the membership is already large, efforts are being made to bring all the representative merchant millers in the State within the fold of the association, and it is anticipated that, at the January meeting, a large number of millers will be received as members. Notwithstanding the short life of the Millers' State Association, much good has already been accomplished, and which must all result beneficially to the worthy millers of the Keystone State. It is not improbable that a memorial will be presented to the State Legislature, this

winter, by the association, requesting some modification or abolition of high and unjust freight rates exacted by the transportation companies whose lines of railroad traverse the great flour manufacturing districts of Pennsylvania. The millers are extremely earnest in their movement, and, as the railroad corporations have always been rapacious, it is certainly to be hoped that the flour manufacturers may be able to give them a lively, if not successful, tussle in the war for right.

In a pilgrimage among the Philadelphia flour makers and dealers, THE UNITED STATES MILLER correspondent has discovered the trade to be in a very fair state, and, in many respects, much more prosperous than other branches of business which are usually supposed to lead in the busy world of mercantile and commercial interests. The large city flour mills are all running, and the proprietors generally report fair transactions, and, while prices are not above those that usually rule at this period of the year, the rates are profitable and comparatively satisfactory. Col. Wm. B. Thomas & Co., whose extensive mills at Thirteenth and Hamilton streets, this city, are considered the largest in Pennsylvania, are in full operation. These mills have sixteen run of stone, and have a capacity of 500 barrels per day. This establishment has recently been shipping large quantities of an excellent grade of flour and superior brands of corn meal to South America. Several "new process" machines have been put up in these mills this month, and are now turning out a fine quality of flour. The machines came from Minneapolis, Minn.

The well-known, old establishment, and reliable firm of Detwiler & Walsh, who are located on Market street, near Thirty-first, are in financial trouble, but it is expected that a satisfactory arrangement may be effected with the creditors, so that the establishment will be able to resume the even tenor of its way by the first of January. The old Keystone Flour Mills, one of the landmarks of the "old Kensington" district of Philadelphia, at the north-east corner of Girard avenue and Leopard street, and of which Bennett & Co. were the honored and celebrated proprietors for many years, is closed by reason of the death of T. R. Bennett. The surviving partner, W. R. Bennett, has engaged in the wholesale and retail flour and grain business, at No. 1706 North Second street. The South American flour trade seems to have excited all the millers of Middle and Eastern States, and a lively and generous competition has sprung up for the grasping of this "big bonanza." The Maryland manufacturers had but hardly put in a bid for this foreign business, when the millers of the little State of Delaware came to the front as competitors in the race, and foremost among the contestants come the representative firm of Pennypacker & Co., whose great flouring establishment is situated on the historical and romantic Brandywine Creek, near the city of Wilmington. Pennypacker & Co. have been, within the past month, manufacturing a very superior quality of wheat flour almost exclusively for the South American trade. The product is about 300 barrels per diem. The firm is also making and shipping considerable corn meal.

The enterprising proprietors of the Harriton Mills (at Bryn Maws, just outside of Philadelphia city limits), Wm. Pyle & Sons, are attracting much attention to their establishment by the extraordinary production they get from ordinary-sized machines. The manufactures of the Harriton Mills have attained such a degree of excellence, and the jealousy of the milling fraternity of the entire southern section of the State has been aroused, and the works of Messrs. Pyle are daily besieged by curious and inquiring millers from surrounding neighborhoods.

A local paper says: "The late explosions in flour mills in the Northwest have excited considerable scientific discussion, and the general conclusion reached is that they were caused by the dust taking fire. As such explosions have occurred only within the few years since new processes have been employed in the manufacture of flour, it is now charged by some of those who have given the subject thought and investigation, that they are due to the things, or whatever term may be appropriate, used by the Northwestern millers for the purpose of "bleaching" their flour. Whether these adulterations of the flour affect the wholesomeness of the flour is a question upon which we can throw no light, but the English laws regard them as pernicious. Evidence of this was given a few years ago, when a prominent manufacturer of flour in that country was arraigned, tried and convicted, on the charge of adulterating his flour for the purpose of rendering it perfectly white. He was sen-

tenced to prison and to pay a fine of £5,000. Would it not be well for those who have been engaged in scientifically investigating the Minneapolis explosions to analyze the flour produced there, and by that means determine this important question? Large quantities of flour come to us from the Northwest, and if, as is intimated, it is drugged, consumers should know it.

W. A. E.

MARYLAND LETTER.

[Special Correspondence United States Miller.]

BALTIMORE, Md., Dec. 11, 1878.—Maryland and Virginia are celebrated for being two of the largest grain and flour producing States of the Union, and both States rank high in name for the excellence of the flour manufactured within their borders. A recent visit of the correspondent of the UNITED STATES MILLER to the grain-growing and flour milling districts of Maryland and Virginia, has developed the fact that both the grain interest and flour industry have, this year, maintained the superior positions they have held for many years past, and the prospect for the parties interested in grain raising and the manufacture of the "staff of life" for the coming year of 1879 are considered to be brilliant.

The good and profitable results of their business during this season has so inspired the grain-growers and millers with confidence in a still better condition of things in the future, that they contemplate redoubling their efforts upon the advent of the New Year, to secure an increase of their business.

In both Maryland and Virginia are located numerous large producing flour milling establishments, which furnish good and remunerative employment to many industrious and deserving hands. Prominent among these mills may be mentioned the "Patapsco Flouring Mills," of which C. A. Gambritt & Co. are the proprietors. These extensive and valuable works are among the oldest built establishments in Maryland, having been constructed in 1774, two years before the declared independence of the American colonies. The brands of flour made at the Patapsco Mills are styled: Patapsco Family, Cape Henry Family, Patapsco Extra, North Point Family, Chesapeake Extra, Orange Grove Extra, Howard Mills Extra, Union Mills Extra, Ridge Mills Super, and Camden Super. These superior grades of flour are well-known in the Eastern States, and have obtained a large and fair paying demand in the markets of the East.

"The Germania Flour Mills," Myer & Brulle, proprietors, and the "Bridgewater Mills," J. B. Ficklen & Sons, proprietors, are located at Fredericksburg, Virginia. These establishments occupy a high position in the trade for the superiority of their manufactures. The brands of Myer & Brulle may be enumerated as follows: White Plain Family, White Fleece Family, Germania Triple Extra, White Plain Extra and Superfine Flour; while those of Messrs. Ficklen & Co. are as annexed: Bridgewater Family, Belmont Family, Belmont Best Extra, Eagle Mills Family, Eagle Mills Extra and Eagle Mills Super.

The Haxall Mills, the Haxall-Crenshaw Company, proprietors, and the Gallego Mills, of Richmond, Virginia, are among the celebrated institutions of the "Old Dominion State." Among the standard brands of high medium and low grades of flour produced at the Haxall Mills are: Patent Family, Haxall Family, Crenshaw Family, Rosario Family, Padeiro Extra, Roseneath Extra, Tremont Super, and Orange Mills Super. Various superior brands have rendered the productions of the Gallego Mills celebrated, but the simple trade "Gallego Mills" is well-known and held in high esteem by the flour men of the Middle and Eastern States. The weekly capacity of these establishments is quite large, for all of which there is always a ready and profitable market. Not only do the representative flour manufacturers of Maryland and Virginia speak in glowing terms of the prosperous situation and indications of a bright New Year, but the proprietors of the numerous small flour milling establishments, which are to be found scattered in almost every section of these two States, are likewise much pleased with the prosperity that has so generally manifested itself in their business, and many of the old wise ones, that are always to be found in rural communities, are predicting the coming of a glorious harvest next year—a time far over-reaching anything that has ever been heard of or known of before in the history of this great American country. But, seriously, the outlook for the year 1879 is certainly very bright for the grain and flour men of Maryland and Virginia, and your correspondent cannot blame the good and worthy people of those States for the warmth in which they express themselves relative to their future prosperity.

-INDIANA MILLERS.

The Indiana State Millers' Association held their regular semi-annual meeting at Indianapolis, Ind., December 12th, 1878. President N. Ellis in the chair, and H. Herbert Emery Secretary.

President Ellis regretted the apathy of millers generally in joining and maintaining the Association; said he had used his utmost endeavors to increase the interest and membership, and felt encouraged at the result and hoped all the members would do their best to make the Association one of the leading ones of the country. In speaking of modern milling he said:

I find that a great many millers are now craving for the so-called new process of grinding, and many are going into it without first thinking what has to be done to profitably carry out the system. From my own experience I find you must either mill in the new style exclusively or follow the old. No half-way will do, for by running your burrs slow and grinding high, for the purpose of making a greater amount of middlings, you are compelled to leave your bran heavy, and by so doing you waste more in your bran than your profit in your flour; and the result naturally will be that at the end of the season's business your profit will be on the wrong side of your ledger. I would recommend to those wishing to make a so-called patent flour that they should consider well before they attempted high grinding when they are not fully prepared to carry it out thoroughly. I find that in order to get the best possible result in making a patent flour with the old system of milling (that is, if you have middlings purifiers) that you must grind close enough to clean your bran, and then make the best you can of your product.

There are many other points in milling that should not be overlooked, as they are also of much importance. The first of all is to be sure and have a steady and uniform speed, for without it you can not have uniform and good work. This being right, see that your burrs are in good, or I might say, perfect balance, but at the same do not forget that they must have a true face and be properly and truly furrowed out. This done, you should have the proper bolting facilities to carry through your work and make both your flour and bran clean.

I would here say that I have blundered for years, and until recently was of the opinion that close and fast grinding was the way to work, but have given up this old foggy idea because convinced by my actual experience that I was wrong, and you will also see it if you give it a sober thought. Let me illustrate: If you grind fast and close you will naturally grind hot, consequently your flour will be depreciated in color and bring less money, and your middlings will be fine; consequently not so easily dusted and will not work over a purifier. On the other hand you give the burrs their proper speed, that is, do not crowd them so as to make them grind hot, and you will then find that you can grind higher, at the same time get your bran clean; your flour will be whiter, of better body, and will sell for more money in the markets. Besides this, your middlings will be better dusted and will naturally work better over your purifiers, and your dust room will not be filled up with what should be in your flour. This may probably not meet the views of every one present, but experience teaches me that it is correct, and I assure you that if you will try it you will agree with me. Another important feature in milling is the cleaning of wheat before it goes to your stock hopper. This matter should not be overlooked, for you certainly can not get a clean, white flour if you do not first clean your wheat.

He then referred to the Cochrane patents, and others, and predicted that the millers would come out victorious in the contest, and concluded by earnestly asking the hearty support of the millers of the State for the Association and its objects.

The report of the Secretary showed an addition of 10 new members. The present membership represents 60 milling firms, representing 240 run of stone, 200 of which are run in connection with purifiers, 25 without, and 15 not heard from. The report then referred to the patent suits, and, in conclusion, Secretary Emery read a portion of Secretary Seaman's report made at the meeting of the Wisconsin Millers in Milwaukee, Dec. 4th. (See proceedings of Wisconsin millers in another column.) The Secretary concluded his report by reminding members that \$5 dues were due all around, as another year had about come to a close.

Insurance, transportation, and inspection matters were informally discussed, and further time extended to committees to prepare reports. Joseph G. Gent, the Chairman of the Committee on Milling Machinery and Methods, then read a carefully prepared paper on that subject. Mr. Gent was warmly praised for his able paper, and the thanks of the Association were voted him for his labor in preparing the article.

In lieu of a report from the Committee on Grain for Milling, Mr. Gibson made a few remarks to the effect that he thought it the peculiar duty of the millers of our State, both for their own and the farmers' benefit, to impress upon the latter the importance of turn-

ing their attention and energies to the cultivation of the bearded red wheats, which experience has shown to be the best adapted variety for this soil and climate, and to this end he recommended that the millers should pay a higher price for this particular variety, and instruct the farmers as much as possible how to bring up their yields to something like the English, and thus get the markets of the world. He stated that there were over 100,000,000 bushels of wheat used annually in England more than they raised, and which our country could and ought to furnish, either in the shape of wheat or flour, from the surplus of our 400,000,000 bushels of annual production. He said the reason we have not heretofore sold flour in England was because we were not manufacturing as good an article as they could make from the same or even inferior wheat by the slower process there in vogue, but now we are sending a great deal, and their merchants and bakers are finding it out. We can manufacture cheaper than they, and all the time, and while our facilities for so doing are constantly becoming better, their's are growing less. He stated that he was refusing to purchase Fulse wheat, but pay more for bearded red wheat, if necessary; however, we can use Fulse wheat, and make money out of it, but only by paying ten cents per bushel less, by properly improving our mills. We can, one and all, make flour of a quality which will enable us to pay an A No. 1 price for such wheat as we require.

Mr. Egglehart thought it well that this Association should recommend farmers to discontinue the use of wire binders; he has experienced a great deal of annoyance and damage from this source, as short pieces of the wire so used frequently pass through his stones and into the bolting chests, where it creates sad havoc with his cloths.

Mr. Ellis stated that he had endeavored to induce the farmers in his section to plant Mediterranean wheat, by selling them Mediterranean seed wheat, and had succeeded in disposing of some 300 bushels in his locality for that purpose.

Mr. Gent moved that a committee of two be appointed to have samples of the different varieties of wheat analyzed; said committee to report at the next meeting of the Association. Motion adopted.

Whereupon the President appointed as such committee Mr. David Gibson and Joseph F. Gent.

Mr. Gent offered the following resolution in relation to the admission of new members:

Whereas, The patent right suits brought against millers of this and other States are now in a manner settled, by being decided against the ring, or by them withdrawn, and the necessity of increasing our membership for the purpose of defending ourselves against this gigantic fraud being thereby removed; therefore be it

Resolved, That a fee of \$100 be charged for membership, in place of \$5 as heretofore, this to go into effect immediately on the assembling of the Association in June next, and that the Secretary be and is hereby instructed to notify all who are in arrears that if such arrearage is not paid by the June meeting their names will be stricken from the roll of membership.

Considerable discussion ensued in regard to the proposed resolution in which Messrs. Egglehart, Gibson, Callendar and others participated, some objections being made, but when the object of the resolution was more fully explained and understood it was unanimously adopted.

Mr. Ellis having directed the attention of the millers present to the recent loss the Association has sustained by the removal from their midst by death of Mr. John J. Brose, one of the original founders of the Association, and who has ever been one of its warmest friends and most active co-workers, several members spoke feelingly of the deceased and their appreciation of his character and worth, and on motion of Mr. Gibson it was resolved that the Chair appoint a committee to draft suitable resolutions of respect and condolence, and that the Secretary forward a copy thereof to the relatives of the deceased.

The Chair appointed as such committee Mr. David Gibson, Chairman, and John A. Thompson and J. R. Callendar.

The committee reported suitable resolutions which were unanimously adopted.

The Treasurer's report showed a balance of \$1,462.45 on hand to apply to balance due on assessments of the National Association. The meeting adjourned to meet at the same place June 19th, 1879.

Gamblers nor infidels hav'n't faith enuff in their professions to teach it to their children.

Whenever yu cum akrost a man who distrusts everybuddy, yu hav found one whom it is safe for everybuddy to distrust.

DOES THE MODERN SYSTEM OF MILLING PAY ?

A Subject that will Bear Considerable Discussion.

[Special correspondence of the UNITED STATES MILLER from Scotland.]

Noticing in your September number the report of the Michigan millers' meeting, I was much interested with the various opinions expressed there as to the best style of milling and at the unsatisfactory answer given to the question: Do you find your profits to correspond with these improvements? This is the clincher—does it pay? and it certainly seemed rather hard for old Twombly to be ridiculed by a contemporary journal for expressing his opinions frankly and honestly, the said journalist seeming to forget that the United States is a very wide country, and a mode of milling which will pay in one district will sometimes not pay in another, and it seems far from settled yet which mode will suit the greatest quantity of wheat produced by the States; although it is evident that the advancing wave of cultivators are raising wheat in the extreme Western States stretching from Manitoba to the far South, which seems eminently suited for the Hungarian or new process of gradual reduction, as one principle rules both, viz., lessening the proportion of bran, which has a risk of being pulverized as the particles are reduced in size; and as shown in your October number, even the most elaborate reduction as carried out in the Pesth Roller Mill shows but a small proportion of the high class flour which has given the Hungarian mode such importance. While circumstances in many of the States forbids the chance of getting an equal price for inferior flour to that obtained where there are large rye-bread consuming populations; while with fair grinding wheat, such as produced by many of the old States, practical experience in Britain proves that the Hungarian cannot compete with the slow or old British mode of grinding for payable results on the whole; and as to having straight or different grades, surrounding circumstances must always have a ruling influence, and in some districts it might even be knocked through at such a rate as to deteriorate the flour and yet pay the miller best from the superior profit on the extra quantity. Now the question occurs, Is the new process in reality more scientific, as is often boasted, than other processes? My opinion is—it is not. It is the same old story. A very simple mode in its origin can be made a very complicated one if you wish it so. The miller of Vienna in old times made the best flour in Europe with hand sieves, and in fact the Hungarian miller of the present day is allowed to be, as a general miller, rather an indifferent one, when he has to contend with the various wheats in British towns. The ancient Egyptians practiced exactly the same mode, gradual reduction in a mortar, now and then sifting out the flour and blowing out the light bran. All the sciences needed careful labor, just as the products of the illiterate cashmere weaver are unsurpassed at the present day by that of the most ingenious loom. And I have not the least doubt that the ancient Egyptian would be forced by a vast expenditure of manual labor to make as good flour for the King's household as any produced by the most elaborately constructed mill of the present day.

What after all is the process that effects the chief improvement? Nothing more than simple sifting either by cloth or wind. All the efforts of science cannot get over the difficulty; the more the regrinding, the more expense for sifting required. The careful slow grinding of the old British could do with a very small separating surface. The Americans with their higher friction rate, commonly used over double the amount, but the Hungarians with their hard wheat far outstrip the Americans, having an amount of cloth that would frighten many British mill masters; and the more regrinding is practiced, the less need to guard against bad or irregular grinding, so that a smaller stone face suffices, which improves the flour, by avoiding polishing which acts so injuriously on its strength. Elevators, conveyors, carrying bands, and other scientific appliances for saving labor, were used long before these new process scientists saw the light. Now it is generally admitted that no man requires a sound scientific education more than the physician, and yet the cleverest of them admits that they are almost useless without practice. How, then, does the experience of the miller with long practice count for nothing in a trade were science, at least science as taught in universities, has effected nothing? I imagine the truth is that the wonders of scientific milling is described by those who know very little of milling or real science.

I will now proceed to give the views of an

old miller in regard to some pet theories of the new school, and having no prejudices in favor of one district or process over another, with no particular center of attraction to keep me within a fixed orbit, they will be impartial to any process, and appeal to the judgment influenced by both reason and practice.

[To be continued.]

FIRES AND CASUALTIES.

Dunbar's flouring mill at Comstock, Mich., burned Dec. 28th. Loss, \$8,000. Partially insured.

George West's cotton mill at Ballston, N. Y., was burned Dec. 5th. Loss, \$60,000; insurance \$30,000.

John M. Cole's flour mill at Rochester, Minn., burned on the night of Dec. 21st. Loss, \$40,000. Insurance, \$21,500.

The Santee flouring mills, at Baltimore, owned by Sam'l H. Hazellhurst & Sons, burned on the morning of Dec. 23d. Loss estimated at \$50,000.

On Christmas day the Globe flouring mills and Niagara flouring mills at Black Rock, near Buffalo, N. Y., burned. Loss, \$76,000. Insurance, \$40,000.

The City Flouring Mills at Logansport, Ind., were burned Dec. 4th. Solomon Jones and Robert Ray were owners. The loss is \$15,000, insurance light. Incendiary.

A fire on Dec. 4th, destroyed the Pacific Flour, Grain and Feed Mills, and grain elevator and drier attachment, situated on Columbia street, between Pacific and Amity streets, Brooklyn, N. Y. Loss, \$200,000; insured.

C. C. Comstock's saw-mill in Grand Rapids, Mich., known as "the upper mill," was totally destroyed by fire early on the morning of Dec. 3d, with all of its contents. Loss about \$10,000, on which there was no insurance. It is supposed that the fire was the work of an incendiary.

Valentine Oberley, father of Peter C. Oberley, had one of his arms so badly crushed in the flouring mill of Howard & Davis, at Neeah, Dec. 1st, that amputation at a point between the elbow and shoulder was necessary. Mr. Oberley was head miller of the establishment named. Though 55 years of age, he is of such sound constitution that his friends are hopeful of his recovery from the shock and the effects of the surgical treatment.

A large boiler used at Hayden's Rolling Mill, Columbus, O., exploded Dec. 5th, while a number of workmen were standing around it. The explosion killed Richard Berry, aged 16, his head being blown from his body; Richard Freeman, a boy aged 18, was terribly scalded and bruised, and died in a few moments after being taken from the ruins of the boiler house. William Lewis, aged 17, was badly, and, it is feared, fatally injured. George Bell had his head cut open by fragments of the boiler, but may recover. John Trainor was terribly scalded and otherwise badly injured; Mich McCarty, a furnace boy, was also badly injured. The boiler was made of quarter-inch iron and was about thirty feet long, and had been in use for some years. No reason was given for the explosion, and it is claimed there were three gauges of water in it when the explosion occurred. The explosion burst the boiler at the steam drum, tearing the metal in strips. A twenty-foot section was thrown through a frame building, thence across a wide street and through a ten-inch brick wall, and finally struck a large apple-tree and fell in a yard about 300 feet from its starting point. All the mill buildings in the neighborhood of the boiler house are wrecks.

HOW TO MEET A DOG.—A gentleman gives the following advice in relation to dogs: "If," says he, "you enter a lot where there is a vicious dog, be careful to remove your hat or cap as the animal approaches you; hold the same down by your side between yourself and the dog. When you have done this you have secured perfect immunity from an attack. The dog will not bite you if this advice is followed. Such is my faith in this policy that I will pay all doctors' bills from dog bites and funeral expenses for deaths from hydrophobia."

At the marriage of a rich corn merchant of 72 in Southport, Eng., to a woman of 67, the wedding guests were bidden to two taverns, where each received a basin of porridge, a potato pie, a bannock and cheese and a pint of ale. Then both houses were thrown open to them to order what they pleased at the bridegroom's expense.

A man's food is bolted when his wife locks the cupboard door against him.

TRICKS OF THE GRAIN TRADE.

[Translated from the German from Dr. Herman Klencke's late work entitled *Lexicon der Verfälschungen* (Dictionary of Adulteration) for the UNITED STATES MILLER.]

The grain trade is one of the most important branches of the world's traffic, and only those who are thoroughly posted should meddle with it, as the inexperienced run the risk of being defrauded by unscrupulous sellers.

In examining grain the weight is generally and foremostly taken into consideration, and it should not be forgotten that the grain should be entirely dry. Dry, heavy grain gives more flour and less bran than dry, light grain. In order not to be misled by the varying contents of water, that is to avoid taking moist grain for heavy and valuable, the weight of various kinds must be ascertained by experiments in an equal space of time under uniform external influences. The samples must be dried in an equal space of time and temperature after which it is weighed. If the grain is moist, either naturally or if it has been purposely moistened, it first swells and expands and then dries with a wrinkled surface, but occupies a greater space and brings less in proportion, because of its wrinkled and uneven surface. It often happens that grain becomes moist on account of the condition of the atmosphere, through being stored in damp storehouses or elevators, or on account of floods, etc. Should it remain in this condition for any length of time it will ferment and decompose—the flour producing elements will change into germ and sugar—the gluten changes likewise, and the ground grain gives a slimy, loose flour. If such grain is brought into market it is easily detected by its loose and softened bran. Dishonest grain sellers used to moisten their grain the night before market-day, so as to make it swell and measure more, by putting a stick of very soft wood into each sack, by means of which a small quantity of water was fed down and soaked through the grain. If such treatment is suspected, take a handful of it out of the sack, give it a tight grip, then open the hand suddenly. If it has been moistened the grain will stick together ball-shaped and not readily fall apart. It is not necessary that the hand should feel the moisture. Dry grain has the following qualities: though the eye nor the sense of feeling does not discern moisture, it is necessary to observe that the bran lays tightly and smoothly on the kernel—that if dropped on a table a certain ring is heard, and if broken its structure shall be brittle and not tough. If the grain is too dry the gluten cannot be ground out sufficiently, and the flour will be yellowish.

Grain should be entirely ripe in order to produce good and rich flour. If it is not sufficiently ripe the gluten portion predominates, and the flour will be slimy and have an unpleasantly acid taste. Ripe grain is known from its perfectness in form and through its yellowish color. In damp, cold summers grain grows lightly—the kernels are small and the straw heavy. Though such grain may lay for a long time to dry it always gives poor flour, and little of it. Grain raised on a rich, fatty soil is not as good as that from a sandy soil or mountainous country, where the soil contains a sufficient quantity of lime and silica. Though the berry may be smaller, its cover is thinner, and it will yield a greater quantity of flour agreeable to the taste. If farmers continuously use manure from pigs and sheep on their grain-fields, the grain will ultimately make very poor flour. Grain loses value by long exposure to the air, and if such exposure has caused the bran to grow darker it is a sign that a certain amount of decomposition has taken place, and that the gluten and sugary portions of the berry have been materially injured. Such grain grinds easily—the flour has a sharp taste, and the necessary fermentation to make good bread will not take place.

Occasionally grain has been found containing copper. Its origin therein was for a long time unknown to the trade, but it was finally discovered that farmers in some portions of the country in order to keep worms away from the grain sprinkled it with a solution of vitrol of copper (blue vitrol). This was found to be in some places a regular custom and readily explained the presence of copper in the flour.

Wheat (*Triticum vulgare*).—There are several varieties of wheat, such as common wheat, bearded wheat, spring and winter wheat, hard and soft wheat, etc. It can be raised as far north as 60 degrees, and at altitudes varying from 2,000 to 2,500 feet. In the general European markets only two kinds are generally considered—hard and soft.

Hard wheat is hard and brittle, and includes such varieties as Odessa, Polish, Danish, African and Egyptian. The soft or white,

half hard wheat is almost exclusively cultivated in France.

We may say there are seven kinds of wheat: *Triticum hibernum*—common wheat.

T. turgidum (Poutard)—the half hard and soft kind.

T. alatum—bearded wheat.

T. durum—hard wheat.

T. polonicum—semi-transparent and long kernels.

T. spelta—spelt or German wheat.

T. amyleum—rich in starch.

Wheat contains from 75 to 76 per cent. of gluten, albumen, oily matter, glucose, dextrine and salts. The harder varieties of wheat are richest in gluten and nitrogenous substances, but also generally contain more oily matter, inorganic salts, cellulose, and less starch than the soft varieties.

Ordinary wheat as raised in America, England, Germany, Sweden and Holland, when burned yields from 1.50 to 1.75 per cent. of ashes. French and Egyptian (and other foreign wheats) are often adulterated with other seeds, such as barley, mustard seed, plantain seed, cockle, darkspur, etc. Some wheat looks good at the top of the sack, while that lower down may be of poor quality, which has been slightly oiled so as to give it a good appearance and thus obtain a higher price. The practice of oiling wheat became so common in France at one time that in 1851 a law was passed prohibiting the practice, the violation of which was severely punished. To ascertain if wheat has been oiled, lay some of it between sheets of blotting paper and press it firmly. If it contains oil, yellow spots will appear upon the paper; or shake up a small quantity in ether, and the oil will readily be seen. To make an accurate test of wheat suspected to have been oiled, take a small quantity thereof and place it in a perfectly cleansed vessel and mix with it a little curcuma (turmeric) powder. If the wheat has been oiled the powder will adhere to every grain, will especially fill in the seam and hang on to the beard. If it is not oiled, the powder will remain entirely separate even though the grain is moist. Another very reliable manner of detecting the fraud is as follows: take a very clean vessel; (be sure it is perfectly free of any greasy substance); fill it with pure water; now sprinkle some camphor dust on the surface of the water. The particles of camphor must be so fine as to enable them to float on the surface. Part of this camphor will dissolve in the water and part evaporate. During this a rotary motion of the particles of camphor will ensue, although the glass is kept perfectly still. Now drop in a portion of the suspected grain. If it has been oiled the rotary motion will cease immediately, and the dust will form into little balls floating on the water. If the camphor continues to rotate, the grain can be safely considered free from oil.

Wheat coming from Egypt has frequently a peculiar taste, something like licorice, called in France "Gout de Reglisse." It is caused by the miserable manner of threshing in that country, which is done by treading of oxen. Their excrement becomes mixed in with the straw, and remaining there too long an ammonia vapor rises therefrom which penetrates the bran of the wheat kernel and injures its flour.

In buying wheat, observe that if it is entirely ripe, dry and of a bright yellowish color, it is rich in flour. It should be uniform in size and free from all mixture with seeds—without dust, mould, soot or smut, and have a thin skin. The average weight of a hectolitre of good wheat is 150 pounds. The "Wunderkorn" so-called by German farmers (equivalent to No. 1 hard in America), is the best wheat, its kernels being short, thick, roundish, bright yellowish in color, heavy, thin-skinned and rich in flour producing substance. The Polish wheat is very large and is more adapted to a warm climate.

The aforementioned oiling swindle has been extensively practiced in Germany. The process is very simple. A shovel is greased on both sides, and the wheat is worked over with it. The gain for the seller and loss to the uninitiated buyer from this trick is great. Eight ounces of oil worth from 10 to 20 cents is sufficient to oil a ton of wheat. Wheat so prepared is often so deceiving in appearance that the eye of an expert will fail to detect the slightest trace of oil. In buying wheat, the specific weight is generally the standard to go by. A hectolitre (150 pounds measure) of oiled wheat weighs from 5 to 6 pounds more than a hectolitre of unoled wheat, and will bring about \$6 per ton more than it ought to, which is a handsome profit on the small sum paid for oil and the trouble of mixing. The increase of the specific weight is caused by the smooth-

ness of the surface of the grain, enabling them to lay close together and giving consequently more weight to the measure. It is our duty to call the attention of millers to this fraud, and warn them of the danger of using such wheat. The danger to which a miller's trade is exposed through worthless oiled wheat are manifest.

Rye [*secale cereale*]. This specie of grain has been cultivated in Europe from a period at least 200 B. C. Good rye is indicated by kernels of medium size, good length, and should be dry and thoroughly ripe, and of fresh bright color. Take a kernel; bite it in two. It should break easily and show a thin shell. The buyer should note that it is free from straw and foreign seeds, and in measuring or shovelling it a peculiarly sharp and fragrant smeling dust should rise. There is a kind of rye, having a glassy surface, which contains much flour, but it never gets white and is generally very tough. Poor rye is indicated by being dark, tough and of a reddish color, having thick skin or black pointed points. Such rye will make a yellowish flour and not much of it.

Rye sometimes comes into the market that is worm-bitten, germinated, dusty and very light. Let it alone. Rye which has been harvested when wet or that has lain in a damp place too long will have a soft and loose skin, and can almost be hulled by simply gripping it in the hand.

Unripe rye is of a dull color, and is generally soft with a wrinkled skin. It makes poor, weak flour. If rye is good it matters not whether it be summer or winter rye, nor of what particular specie it may be. When floured it will give satisfaction to the consumer.

Barley [*Hordeum vulgare*]. This grain is sown either in the spring or fall. Barley grows in the Himalaya Mountains at an altitude of 14,000 feet above sea level. According to Plinius it is the earliest specie of grain known. The ancient Hebrews and Egyptians cultivated it. In buying barley look for a clean article, free from chaff and foreign seeds. The kernels should be of uniform size and weight, and of a bright straw yellow color. The outside of the berry with exception of the edges should have a smooth appearance. The skin should be thin and the inside consist of a tasteless, white, hard, flour-producing substance. Avoid purchasing light, flat, germinated, grey or dirty green, damp, mouldy, wrinkled or worm-bitten barley. It makes worthless yellow flour. Thin shelled barley, large and heavy, is good. Brewers, buying barley for brewing purposes, must be sure to observe that it is thoroughly ripe. If not entirely ripe it will not germinate, and consequently cannot be malted. Barley should not be stored in large quantities. If it is, it will be damaged. The color will change and it will emit a damp, musty odor, and is practically useless for brewing purposes.

HUNGARIAN SYSTEM OF MILLING.

BY JAMES M'LEAN, AUTHOR OF THE MILLER'S TEXT BOOK.

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This system, which has been tried in various British mills with indifferent success on the whole, seems to have been perfected about Vienna chiefly, the inhabitants of which would appear to be rather epicurean in their tastes, it being almost the only city in Europe where geese livers are selected as a favorite dish, and in their division of flour they show the same fastidiousness, even though it entails enormous labor, as the hand-sifting men seem to have existed there some generations after they had disappeared from Britain. The chief benefits of this system are the removal of the bran from the destructive pulverization of heavy pressure grinding necessary with hard wheats. Californians, Australians, and Hungarians thus differ widely in their practice; while the two former work with an extreme pressure to save the bran, the latter grinds it down in from four to seven stages, removing the bran each time, thus requiring a much more extensive separating surface. As experience shows, the milder the pressure is applied, the better the flour for baking purposes. The flour of hard wheat, which requires heavy pressure to save the bran, must be better on this account alone; with soft tough wheat, when no crushing on the face is necessary, the average furrow incline is sufficient for the gradual breaking down, therefore no benefit can result to it on this point. With soft wheat, also, the bran is but little injured during a long stone passage, or rather both flour and bran require it; but the stone would be much more efficient if both were separated, as the bran clogs the motion of the flour much

more than the seeds in the sheller. Keeping always in view the adaptability of the wheats for cutting or crushing, the harder they are the more will be splintered off at each crushing, or keeping heat out of view, as some wheats will grind three times faster than others with the same freeness, so will the subdivision of such wheats be three times greater at each crushing, so that with soft tough wheats going beyond two or three grindings will cause enormous labor and expense. Two grindings may be considered to be almost universal in town mills already, as most of them grind their sharps; but certainly some of them might much improve their flour by doubling their stone-feed, keeping always the average crushing power that the experienced grinder knows suits the baker, and if the loss with the bran is too much, it is easily ground over again. Also, what is the benefit of sticking so firmly to clean bran at one grinding, when it and the sharps are so much nearer each other in value than they used to be. The good results to the flour from the high grinding of some wheats was well known and practised occasionally long since when loss of flour was a much more serious affair than now, and when there is danger of shortness the dressing can be finer, more being sent to be ground over again, and the other grinding gives it the finishing touch for handy baking, there being less danger of bran pulverizing if sifting and blowing have been properly used. The advantages of regrinding are thus according to the hardness of the wheat, and likewise as the advantages increase the difficulties decrease.

ANOTHER EXPLOSION.

The Anchor Mill of Pillsbury & Co., at Minneapolis, Destroyed.

On the evening of the 9th of December, another disaster occurred at Minneapolis, which resulted in the destruction of the Anchor Mill, C. H. Pillsbury & Co., proprietors. About 8 o'clock Nels Munson, one of the millers, discovered that one of elevators which conducts the flour from the lower basement to the middlings purifiers in the upper story of the mill was clogged. He took a lantern and proceeded to the basement for the purpose of removing the obstruction. Arrived in the basement, he took the precaution to place his lantern some fifteen feet removed from the elevator, where the difficulty was, but placed it directly in front of the door opening into the elevator. Removing the obstruction he started the elevator once more, when a great puff of flour dust came out of the open elevator door, reaching to the lantern, when "whiff" and there was an explosion similar to the great one last spring, only smaller and unaccompanied with its disastrous effects. Munson was badly burned about the head, hands and face, but not dangerously. He immediately stopped the mill and he, together with Theo. Barthoff and W. W. Smith immediately turned on the water and tried to put the flames out with the hose. It was no use, however. The flames ran up all the elevators and then the entire interior of the mill was soon on fire. The alarm was immediately sounded and the entire fire department of the city were on the ground with all speed, but with all their efforts it was impossible to stay the flames.

The fire was confined to the mill which was completely destroyed on the inside. The mill was worth \$75,000, and the wheat and flour on hand \$12,000 more. There was an insurance of \$49,000 on the mill and stock, Mr. Pillsbury says the mill will be immediately rebuilt.

A FORMER "CORN KING" IN PENURY.—One of the saddest and most complete financial wrecks of the day is that of the great Sullivan estate in Gibson Co., Ill. The assignee's sale of the personal property took place last Thursday and Friday, the lands having been surrendered to the mortgagees. Everything was disposed of and to-day M. L. Sullivan, the great corn king of the world, is without lands and without a roof to shelter his family he can call his own. Under the enforced sale and foreclosure, we learn, the estate failed to realize enough to pay the indebtedness by \$100,000. The melting away of his once kingly estate is a remarkable example of "how riches take to themselves wings." Mr. Sullivan's farming operations were on the most colossal scale in the country, and his failure only emphasizes the lesson taught by repeated smaller failures on the part of others, that large farms do not pay in this country. It is not likely that farming on the scale carried on by Mr. Sullivan will ever again be attempted in this State, and his magnificent domain of 40,000 acres will doubtless be cut up into numerous small farms. And while we sympathize with Mr. Sullivan in his failure, we cannot but regard this as the best disposition to be made of these fine lands. They will furnish homes for several hundred happy families. —Gibson (Ill.) Courier.

ILLINOIS MILLERS.

Fifth Annual Meeting of the State Association.

Officers Elected—Status of the Patent Suits—Official Reports, Etc.

The fifth annual meeting of the Illinois Millers' State Association was held at Springfield, Ill., December 4th, 1878. The meeting was called to order in one of the Leland parlors at 10:15 a. m., by President D. R. Sparks. Secretary C. H. Seybt was ably assisted by Col. W. L. Barnum, of Chicago.

The following members were present: D. R. Sparks, Alton; C. B. Cole, Chester; James Gordon, Sparta; A. Stubbs, Delevan; Wm. Sears, Rock Island; Wm. Broecker, Springfield; H. G. Fahs, Olney; S. H. Bradley, Mendon; Conrad Eisenmayer, Summerfield; Geo. Postel, Mascoutah; Wm. H. Davis, Glassford; John Schultz, Beardstown; Theodore Reuter, Nashville; W. T. Crow, Cotton Hill; F. W. Brickley, Prairie du Rocher; Wm. Fischer, Red Bud; John Ault, Olney; Benj. Ironmonger, Mason City; E. C. Kreider, Jacksonville; C. H. Seybt, Highland; L. W. McMahon, Griggsville; Nathan Underwood, Dixon; J. B. Eames, Carlyle; J. P. Edwards, Waterloo; E. P. Barker, Sparta; M. J. Adam, Joliet, and a number of visitors.

On motion of Mr. Seybt, the Chair appointed a committee of three to nominate officers for the ensuing year as follows: Messrs. Davis, Brickley and Eisenmayer, who subsequently reported as follows:

President, D. R. Sparks, Alton; Vice-Presidents, James Gordon, Sparta, and B. F. Hill, Paxton; Secretary and Treasurer, C. H. Seybt, Highland; member of Executive Committee, vice Martin Hickox, deceased, Nathan Underwood, Dixon.

The report was unanimously adopted.

At the afternoon session Hon. F. N. Judson, of St. Louis, was present by invitation, and fully explained the present status of the famous Cochrane suits, saying that the Millers' Association were fully prepared; that the evidence was all in; and early in February next it is expected that the case will be finally decided. His address was listened to with much interest by all present.

N. C. Gridley, Esq., of Chicago, attorney for the Association, also fully explained the status of the Denchfield claim for a milling device now being prosecuted against the millers of this and other States.

On motion of Secretary Seybt the President appointed Messrs. Halliday, Kreider and Postel, a Committee to examine the report and books of the Secretary and Treasurer, who returned the following report:

We, the undersigned committee appointed to examine the report of C. H. Seybt, Secretary and Treasurer of this Association, have to report that after a thorough examination we find that the books and reports are correct and satisfactory in every particular.

A communication was received from the Minnesota Millers' Association condemning the use of wire binders as now used in binding wheat, showing the damage done thereby to the mill-stones, bolting cloth, bran dusters, purifiers and other mill machinery.

The following resolution was adopted almost unanimously, after some debate, several millers giving their experience with wire-bound wheat, showing pieces of wire taken from different machines, found in the wheat, in the burrs, in the chop, in the bolting chests, in the flour, and in the biscuit:

Resolved, That we consider the use of wire binders as injurious to our mill machinery, and that we strongly recommend a discontinuance of the wire binders in favor of cord or other material which will work no damage to our machinery.

When the Association assembled in the evening, Mr. Seybt offered the following resolutions, which were unanimously adopted:

Resolved, That by the death of our esteemed brother miller, Martin Hickox, of Springfield, we have lost one of our most faithful members of the Association, to whose efforts we owe much of the success of its organization.

Resolved, That a copy of these resolutions be furnished to his aged mother.

Col. W. L. Barnum, Secretary of the Millers' National Insurance Company, of Chicago, which is managed by the National Association, and insures only mill property belonging to members, submitted his annual report, as follows:

Gentlemen of the Illinois Millers' State Association: Three years ago you organized what is now the Millers' National Insurance Company of Chicago, and I have the pleasure of submitting the following report showing its financial standing on December 1st, and the good it has accomplished:

Cash on hand and in bank.....\$ 1,625 99
U. S. bonds.....10,000 00

Premiums in course of collection.....	165 00
Assessments in course of collection.....	16,978 77
Cash on hand and subject to draft.....	\$ 23,770 76
Office furniture and fixtures.....	\$ 408 90
Deposit notes subject to assessment.....	363,413 83
Total assets.....	\$392,593 49

LIABILITIES.

Unpaid losses.....	None
The following losses have been sustained by this company and promptly paid from the permanent fund thereof during the year 1878:	
March 18, 1878, Fargo, Lord & Co., Grass Lake Mills.....	\$4,111 75
March 2, 1878, C. C. Washburn, Minneapolis, Minn.....	2,550 00
May 9, 1878, G. C. Delinger, Pearl Rock, Iowa.....	3,000 00
May 3, 1878, D. A. Burrows, Galena, Ill.....	4,123 90
May 13, 1878, J. H. Walsh & Co., Galena, Ill.....	510 20
June 17, 1878, Pursel, Earl & Co., Schoolcraft, Mich.....	3,657 79
July 30, 1878, A. E. Spalding, Huntley, Ill.....	3,916 00

Amounting in all to \$21,871.64, which includes all losses reported during the year and up to this date.

Amount of losses paid since organization, May 1, 1876, \$6,134.33, and this without litigation, or contesting a single claim.

We have paid all losses and expenses, and accumulated a cash fund of over \$28,000, at an expense of only a trifle over one-half the board rates charged by stock companies.

Our first policies were issued May 1st, 1876, and to this date—31 months—a comparative cost of insurance in the Millers' National and in stock companies for the same amounts, pro rata, is as follows:

On a brick or stone water power mill where stock companies charged 3 per cent a year, its cost has been 1 per cent. On a stock rate of 4 per cent, it has cost 1.80 per cent. For a mill rated at 3.50, it has cost our members 2.10 per cent. On a 4½ per cent stock rate, it has cost 2.71 per cent, making a direct saving to our policy holders of \$93,405.95, and in causing the board companies to reduce their rates on the mill property, where this company have risks of at least ten times as much more, or in round numbers, a saving to the whole flouring mill fraternity of this country of fully one million dollars. The success of this company has exceeded our most sanguine expectations, and, with the increased membership, the cost to each is decreasing in the same rate, so that now our annual assessment drafts are only for two-fifths of the old stock rate, being equal to a return dividend of 60 per cent a year. Our policies have increased 200 during the past year, so that now we number 742, representing the best flouring mills in the United States and covering property to an amount which exceeds \$2,000,000, and so scattered that the burning of one mill will not endanger another.

When this Association, Mr. President, first formed this company for their own protection, they builded better than they knew. They have saved in reduced rates of premium, many, many times the expense of organization, and have the satisfaction of knowing that they have a company of their own on so solid a basis that in its ratio of assets to liabilities, which is the only true test of solvency, it stands to-day the peer of any other company in the United States.

The following resolution was then unanimously adopted:

Resolved, That the above full and complete report speaks for itself, and that further recommendations or special laudations are unnecessary.

Mr. Atwood, Secretary of the Illinois Millers' Fire Insurance Association, of Alton, Ill., presented a most satisfactory report of the condition of that organization, showing that it had not sustained a single loss in fourteen months. The following resolution was then unanimously adopted:

Resolved, That we hope the good luck which has so far favored our modest home institution may long continue, and that we have good reason to anticipate favorable results for the future, knowing that the management of it is in proper hands.

Mr. W. J. Adam, of Joliet, and the President, made some interesting remarks, reviewing work of the Association, and comparing its present prosperous condition with that of former years.

After an informal talk on subjects of interest to the fraternity, the meeting adjourned, to meet at Springfield on the first Wednesday of December, 1879.

FOR SALE—A two-run water power merchant flouring mill. For information and particulars, call on or address J. H. HARTWELL, Deputy, Jefferson county, Ind.

MILLING PATENT—To be sold cheap—A fourth share in a valuable Patent in Flour Mill Machinery. Thirty per cent guaranteed. Address PATENTEE, 39 Dryden Road, Edge Lane, Liverpool, Eng.

FOR SALE—A modern two-run steam mill in Western Iowa, on the line of the Chicago, Rock Island & Pacific R. R. New mill with all improvements. Apply to R. J. CORY, Council Bluffs, Iowa.

FOR SALE—A steam custom and merchant mill, with three run of 34 foot stone. In good running order, and has a good trade. Will be sold cheap. For particulars, address WM. CROZER, Elizabethtown, Hardin county, Ill.

FOR SALE—Merchant Mill—A valuable steam flouring mill, situated at Claremont, Ill., 125 miles east of St. Louis, on the O. & M. R. R. This mill has six run of stone, capable of making 1,200 barrels of flour per week, together with all modern improvements. Machinery all first-class. Plenty of storage and an abundance of good soft water. Fuel cheap; railroad switch to the mill door. Good cooper shop, with 16 berths. New office in mill yard, platform scales, stock pens, etc. Good dwelling house, etc., with 17 acres of land. Property stands high in New York, Boston and Baltimore markets. For further information address ROBERT BYERS, Olney, Ill. G. W. BOODY, Vincennes, Ind., or the undersigned, J. A. S. BYERS, Leavenworth, Kan.

FOR SALE OR EXCHANGE.

Advertisements under this head \$2 per insertion, cash with order.

FOR SALE—A Steam Grist Mill, two run of stone and all other necessary machinery in good order. German neighborhood. Or I will sell a half interest to a Practical Miller. Address JOHN SPINDLER, Jan* P. O. box 21, Woodland, Barry Co., Mich.

FOR SALE—Two-run Steam Grist Mill, at North Union, Montgomery county, Ind., on L. C. & G. W. R. R. Will sell cheap for cash, or trade for land. Call on or address J. H. ARMSTRONG & CO., Jan* North Union, Ind.

FOR SALE—A Steam Grist Mill, with two run of stone, a Steam Saw Mill, two Houses, Barn, Shop, and 3 acres of land, on Lake Shore Railroad, 15 miles from Buffalo, N. Y. Will be sold at a low price to close an estate. Address SELLEW & POPPLE, Jan* Dunkirk, N. Y.

WANTED—Water Mill Wanted to rent by a first-class miller—a two or three-run water power flouring mill, with privilege of buying. Will pay cash, rent, or give share of profits. Address FRANK A. MAINES, Jan* Georgetown, Williamson Co., Texas.

WANTED—To Exchange—Good fresh stock of general merchandise, best location in growing county seat, for a first-class custom flouring mill in a good location for permanent business. Kansas preferred. Give full description and cash valuation. Address W. H. WALLACE, Newton, Jasper Co., Ill. Jan*

FOR SALE—Mill Property for Sale or Exchange. A three-run Grist Mill and Saw Mill, all driven by water. Price, \$6,000. Would take part of the purchase price in Iowa, Nebraska or Kansas lands. Address BENJAMIN DEY, Worcester, Otsego Co., N. Y. Jan*

FOR SALE OR RENT—Cherokee Mill—A three-burr, 40-horse power, steam flouring mill, with all the modern improvements; situated in a wheat-growing country, with railroad connections and cheap fuel. Terms easy. Address S. ALBERTY & CO., Jan* Cherokee, Crawford county, Kan.

FOR SALE—Circular Saw and Grist Mill; bench saw; run of foot stone; large pond; 20 feet head; good house and barn, and four acres of land. Located in West Northfield, Mass., three miles from South Vernon. Would take a good portable engine, 25-horse power, for part pay. Address E. O. FELTON, Jan* Bernardston, Franklin Co., Mass.

FOR SALE—The best Steam and Gin Mill in Texas; two-run of Burrs, Bolts, Smutter, etc. Two Gins and a Cotton Press; 40-horse-power engine and boiler; Wagon Scales; Good Buildings; Constant Work; Delightful Country. A bargain is offered. Address F. W. CARTER, Iredell, Bosque Co., Texas. Jan*

FOR SALE—A Wind-power Grist Mill with 60 foot wheel, three run of stone, cleaning and bolting machinery complete. Located in one of the best wheat-growing sections of Minnesota. Railroad will be built to the place next summer. Will be sold cheap and on easy terms. Address JOHN MANUEL, Jan* Elliot, Fillmore Co., Minn.

FOR SALE—Cheap for Cash—A Circular Saw Mill; water-power never failing; all modern improvements; mill in good order; plenty of timber, and good wheat land surrounding. Parties need not apply unless they have at least \$2,700 to invest. Address for further particulars, G. F. BLASHECK, Jan* Maiden Rock, Pierce Co., Wis.

FOR SALE—One of the best mill properties in Michigan, consisting of flouring mill with three run of large millstones, saw mill, cooper shop, warehouse, store (with or without goods), light dwelling houses all in good repair, with barns and about 27 acres of land, 100 miles west from Detroit, on the Michigan Central R. R. Address JOHN EVANS, Jan* Marengo, Mich.

FOR SALE—One of the best two-run Custom and Merchant Mills in Hancock county, Ill. The mill is situated in the town of Hamilton, Ill., at the east end of wagon bridge leading into Keokuk, Iowa. Decidedly one of the best locations for a Custom Mill in the State. Can now run all the time on custom work, and is new, having been built the present season. Price extremely low. Address S. L. HOBART, Jan* Hamilton, Hancock Co., Ill.

FOR SALE—Mill—At a bargain—A first-class mill, cottage with five rooms, 1½ acres of ground, out-buildings, fruit, etc. Mill heavy frame 70x30, four stories high, in good repair and doing a good business. Cost eight years ago \$13,000 to build. On a never failing stream, 12 feet head. Dam kept up by State. Boats land at mill door. Three run of best quality French burrs. Three water wheels. Grocery kept in mill. Terms \$7,000, cash \$2,500, balance on easy time. Write Jan* J. FRAZIER, at Devo's Dam, Marietta, O.

FOR SALE—Alabama Flour Mill—Two-run Custom and Merchant Mill in Springville, Alabama, complete. Excellent location. Good trade. Splendid climate. Mill close to a perpetual cold spring, furnishing water enough to run 15 or 20 horse-power turbine with 15 foot fall. Mill now uses steam power. Satisfactory reasons given for selling. Terms, \$1,500 down and \$500 in 12 months. Must be closed out soon. For further information address A. J. ADEKHOLO, Jan* Springville, Ala.

FOR SALE—A 3-story frame Water-power Mill, with two-run of burrs. The machinery is in good order, improved purifier, mill arranged for both merchant and custom mill. The mill property includes barn, sheds and cottage, young orchard, 500 Acres of Land, 100 acres under cultivation, and the rest in hay and wild land. The undivided half of the above will be sold for \$4,000, part down, and the balance on time. Address I. W. DICKINSON, Jan* Sabula, Jackson county, Iowa.

FOR SALE—A steam grist and saw mill, located at Morton, Ind., 12 miles northwest of Greencastle, Putnam county. Mill in good running order; 1 wheat and 1 corn run—both in operation at present time, with a good run of custom work. Capacity of saw mill 10,000 feet per day. Timber plenty and of easy access, mostly poplar—with some walnut. For particulars and terms, apply at once to HATHAWAY & HATHAWAY, Jan* Greencastle, Putnam county, Ind.

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Millers, Engineers, Mechanics, etc., wanting situations, or mill-owners or manufacturers wanting employees, can have their cards inserted under this head for 50 cents per insertion, cash with order.

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WANTED—A situation by a young man that can grind all kinds of grain, dress the corn burr, and who is a good hand with horses and will work cheap. Address Jan* J. ELLIS, Earlville, Ill.

WANTED—A miller who is capable of running a Merchant and Custom Mill. Must be a good stone dresser and able to grade flour. Apply, stating terms and giving reference, to R. F. SOADY, Jan* Columbus, Miss.

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WANTED—To operate a mill on shares. Young man, 24 years of age, energetic, of steady habits, with best of reference from present employers. Indiana or Ohio preferred. Address B. C. MILLER, Jan* 280 N. Mississippi St., Indianapolis, Ind.

WANTED—Miller—One who thoroughly understands the German system of High Milling and the New Process American Milling. Address if convenient in the German language. FRED AMENDT, Jan* Abbeyville, Medina, Ohio.

WANTED—A situation by a Practical Miller and burr dresser who understands both old and New Process, dressing and balancing burrs a specialty. Any firm in need of a miller will do well to address H. M., Box 139, Storm Lake, Buena Vista Co., Iowa, stating terms. Jan21

WANTED—A situation by an Engineer. Learned the trade thoroughly in Germany, and am competent to act as Chief Engineer in any miller manufacturing establishment. Situation wanted in the Western States. Best of references given. Address J. SOEDER, Jan* P. O. box 491, Keokuk, Lee Co., Iowa.

WANTED—A situation as engineer in a large or small mill. Have had 22 years' experience running high-pressure engines of different kinds, and 6 years operating Corliss engines. Can give best of references as to ability and character. Can go any time. Address dec31 J. F. STRAIT, Box 1109, Kalamazoo, Mich.

WANTED—A situation as helper or second miller, by a young man who can grind corn and wheat, and make himself generally useful. Of temperate habits and can give good reference, etc. Correspondence solicited. Address N. P. COTHMAN, care of D. B. Williams, Elton, Ky. Jan*

WANTED—A situation by a thoroughly practical miller (German). First-class St. Louis reference. Satisfactory reasons given for leaving present situation, where I have been working for the past six years. Address ADOLPH BRENNER, Jan* 1913 Jackson St., St. Louis, Mo.

WANTED—A situation in a custom or merchant mill, for reasonable wages, by a miller who has had long experience in the business. Can run a mill and take charge of it. Can come immediately, and will guarantee to give satisfaction. Address J. C. WEISS, Jan* Princeton, Wis.

WANTED—A situation in a Merchant or Exchange Mill by a practical miller and stone dresser who thoroughly understands the new process in both spring and fall wheat. Good references furnished. State terms and capacity. Address J. M. BELL, Jan* Pittsburg, Iowa.

WANTED—A situation by one who has had a lifelong experience in operating and superintending mills. Can come immediately and furnish the best of references if required. New Process preferred. Steady employment must be given or no one need apply. Address Jan* V. G. HAAG, Ewing, Franklin Co., Ill.

WANTED—A situation in a Merchant or Custom Mill by a young miller of fifteen years' experience. I am a good stone dresser, and understand the New Process. Have worked in some of the best mills in Michigan and Ohio. Would take position of second miller. Would prefer to go to the northern part of Ohio, or to Manitoba. Address M. J., Box 349, Jan* Springfield, Ohio.

WANTED—A situation by a miller who is competent to take charge of a first-class Merchant Mill. Have had from 25 to 30 years' experience in the business, and can give good reference from first-class city and country mills. Also understand New Process as well as old. A situation in the Western States preferred. Address THOS. GREASLEY, Jan* corner Ferry and Main Sts., St. Louis, Mo.

WANTED—A situation in a Merchant Mill by a young married man, who is sober and industrious. A practical miller and good stone dresser. Understands both old and New Process. Good reference given if required. A permanent situation desired if satisfactory to all parties, and good work guaranteed. Address Jan* S. H. BLACKBURN, Box 275, Pittsfield, Ill.

WANTED—A situation by a miller of twenty years' experience in both Custom and Merchant Mills. Am an American, temperate and held my last situation eleven years. Am a good stone dresser and have the best of recommendations. Would prefer a country mill, either on salary or shares. Can come at once. Address Jan* W. H. B., Box 114, Saratoga Springs, N. Y.

WANTED—A situation by a first-class miller and stone dresser who understands the old and New Process of milling. Have been in the business fourteen years, and have worked in Merchant and Custom Mills. Am a married man, thirty-four of age, strictly temperate, honest and not afraid of work. Parties about to make a change will do well to correspond with me at once, stating terms, describing mill, etc. Address Jan* WM. POWELL, Lyndon, Whiteside Co., Ill.

WANTED—An experienced miller and salesman desires a situation with some large milling and grain shipping firm as miller or salesman. I have had sixteen years' experience in this business, and now command a large cash trade in flour, wheat, corn, oats and mill feed. Can influence a trade of from two to three cars per day in these articles at market prices. For honesty and ability the best of reference will be given. As a miller, I have Ohio and Pennsylvania references. Address MERCHANT MILLER, Jan* Chester, Delaware Co., Pa.

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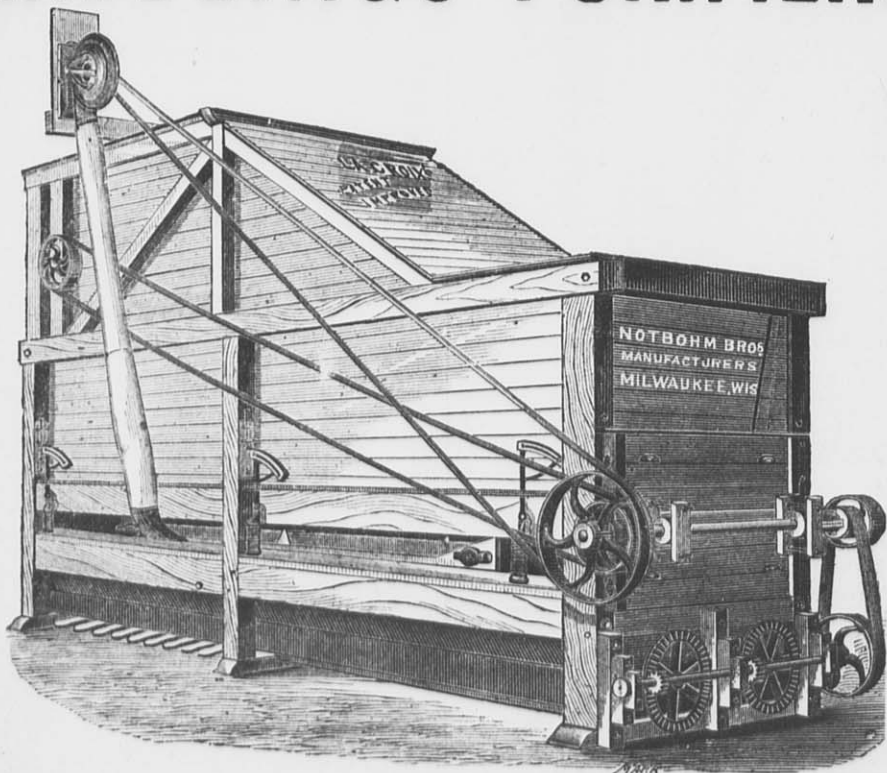
We consider it a duty to our customers and the milling public to make an explanation through your paper, as to the recent decision in Chicago (as we understand it), of the Throop Grain Cleaner Co. vs. Eureka Manf'g Co., manufacturers of the Cone-Shape Becker Wheat Brush. We were sued for making Brush Machines under the original Becker Patent (which claimed a Contracting-Case), when in fact we have not made a Contracting-Case Brush Machine since 1875, the year Throop got his re-issue. Their attorney said in open Court, that if we made and sold the machine we said we were making, viz., a Brush Machine without a Contracting-Case, they would not be fools enough to sue us as they would have no case against us. We will say to our friends and patrons that we will continue to make the Cone-Shape Becker Wheat Brush, as we have made them since 1875, and shall be glad to fill all orders, and will indemnify our customers from any Royalty that any party may get against them.

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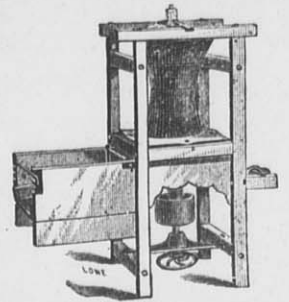
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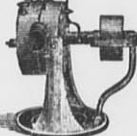
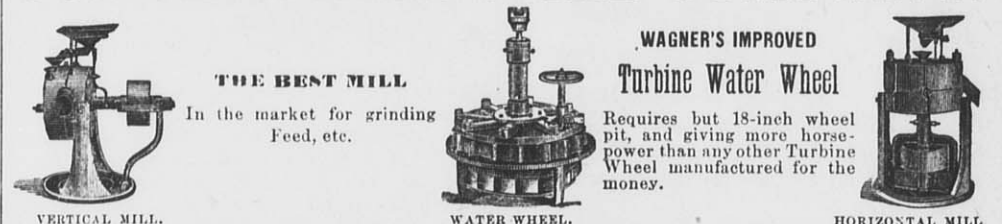
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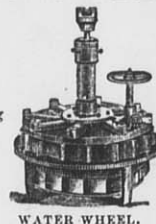
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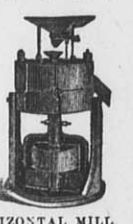


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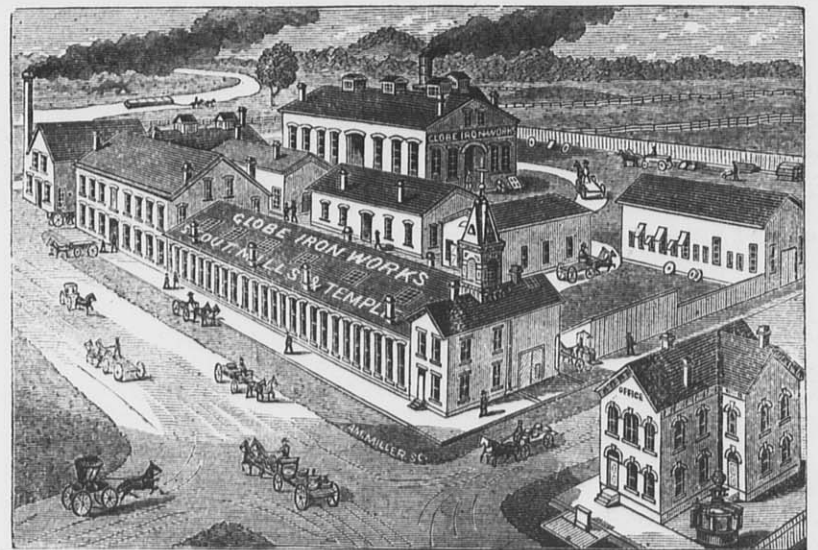


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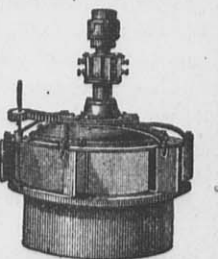
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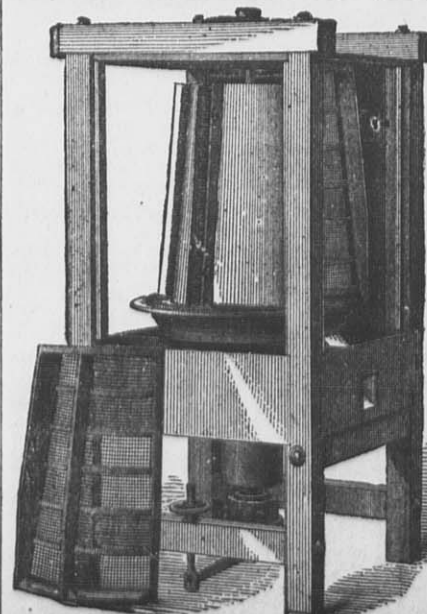
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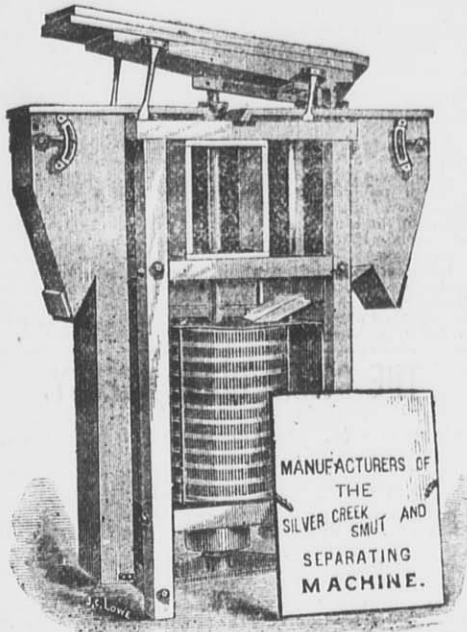
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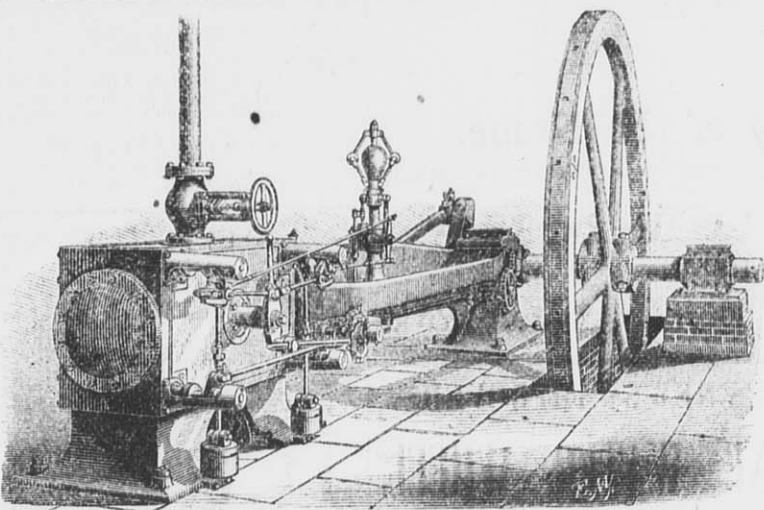
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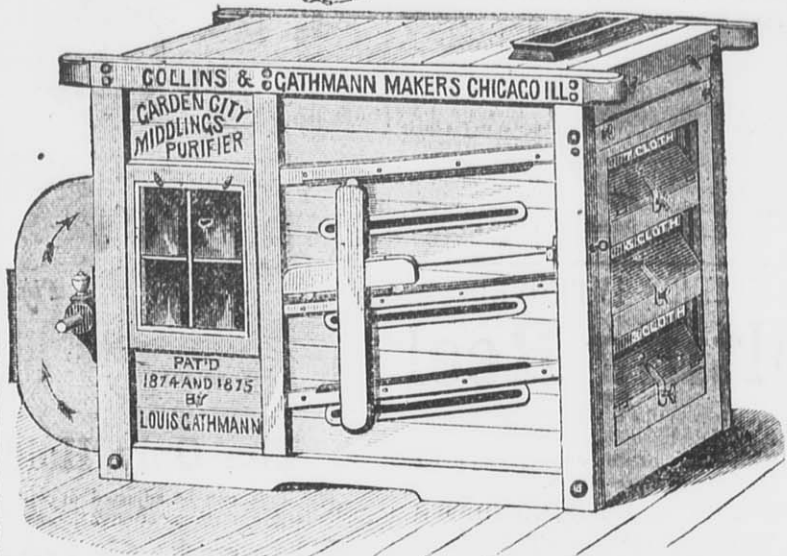
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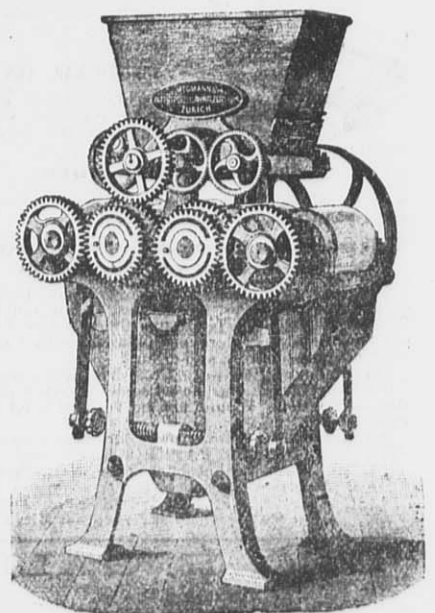
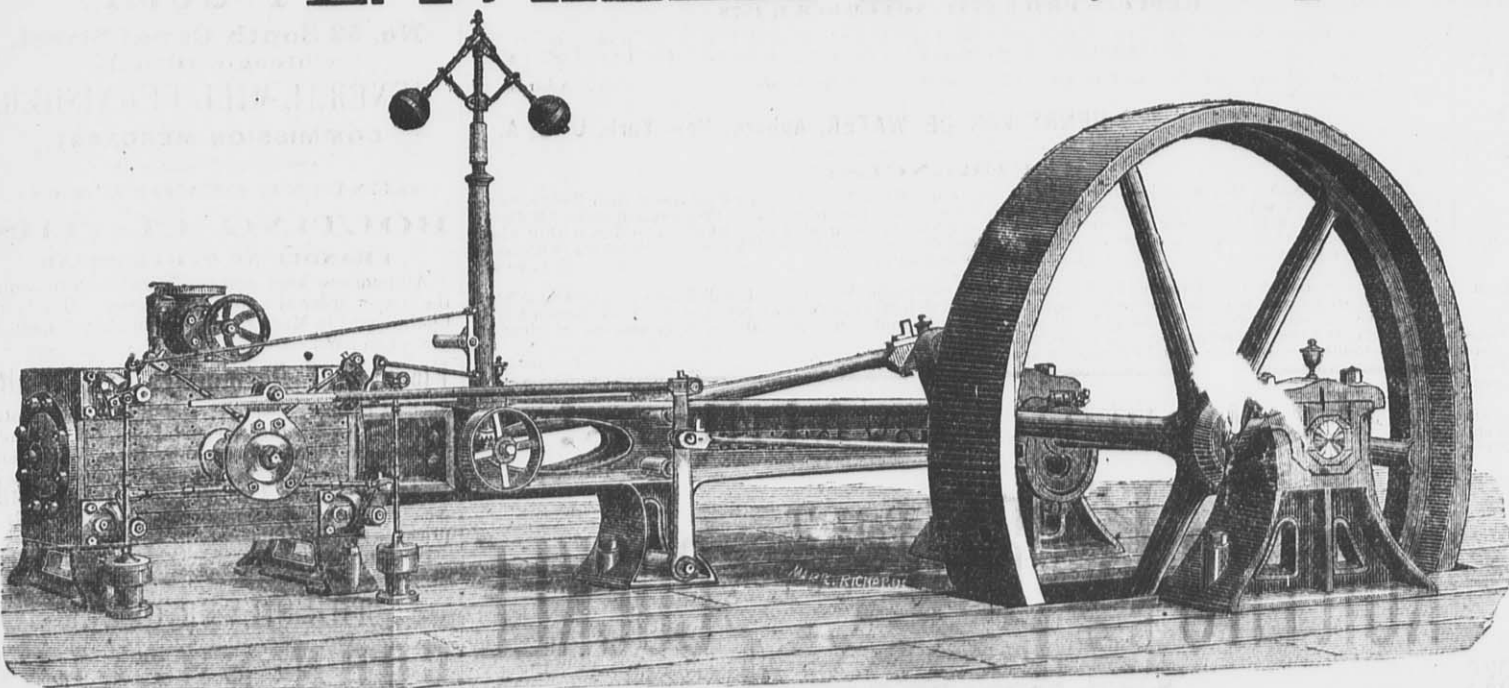
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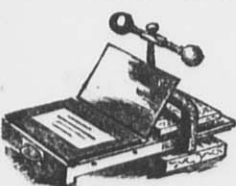
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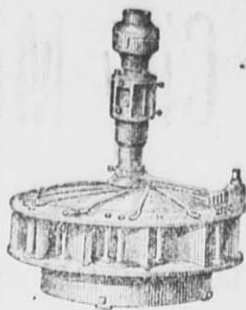
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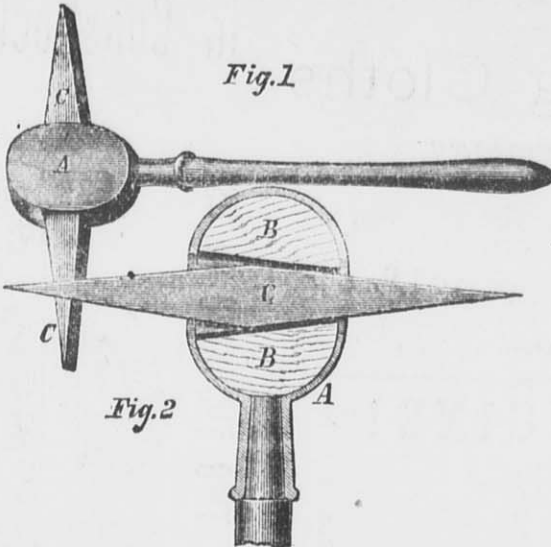
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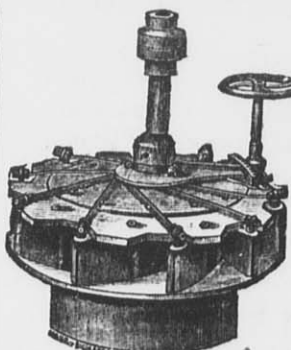
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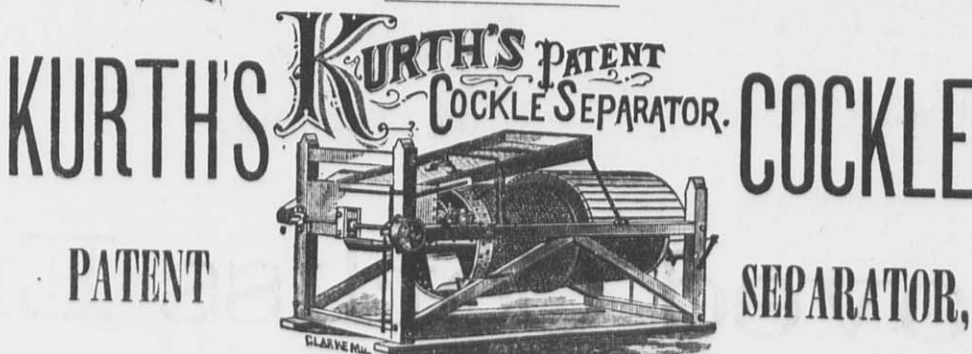
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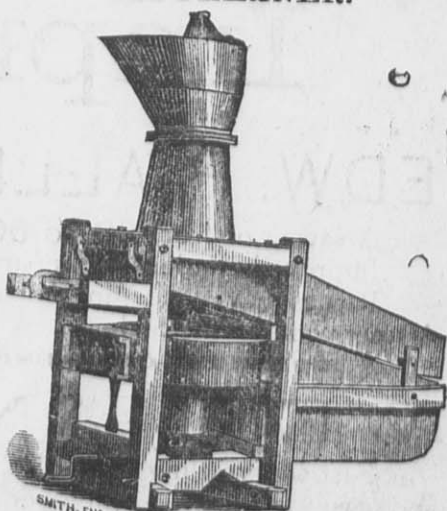
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